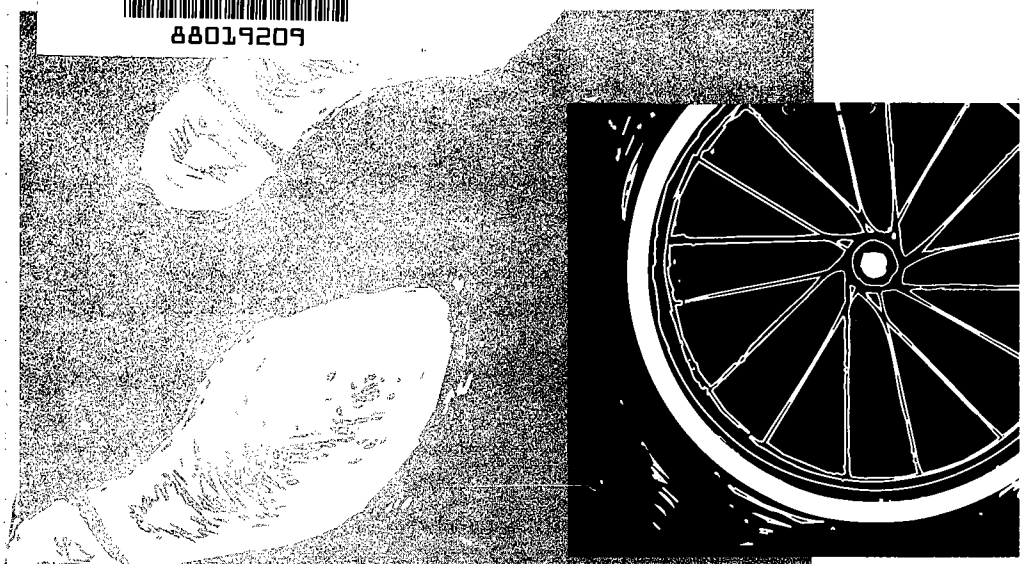

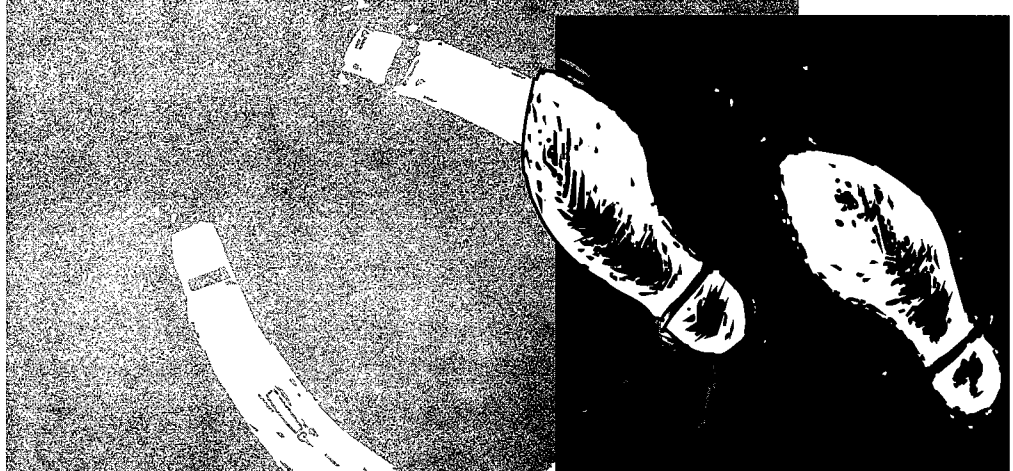

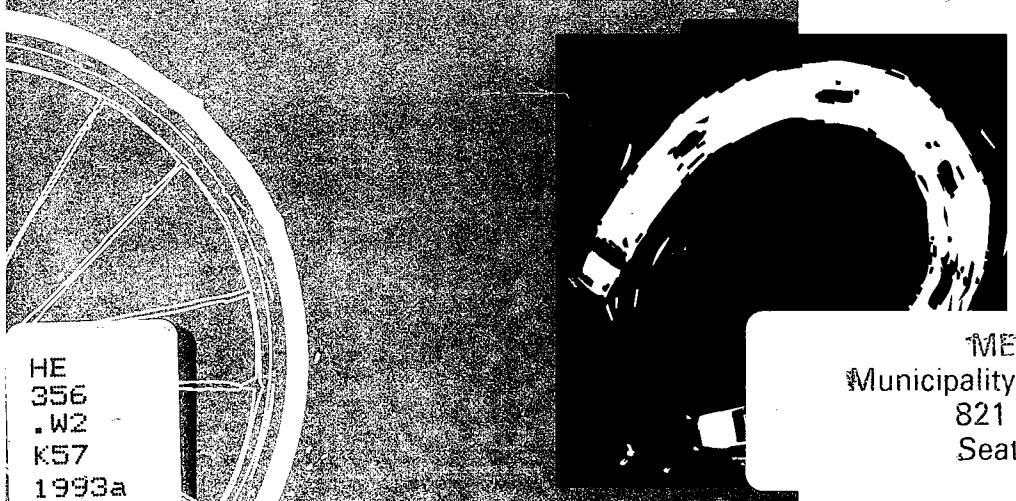

KING COUNTY

NONMOTORIZED TRANSPORTATION PLAN

ADOPTED
May 1993

Department of Public Works • Roads Division • Transportation Planning Section • King County, Washington

EXECUTIVE SUMMARY

Mandate and Mission

The mandate for developing the King County Nonmotorized Transportation Plan (KCNMTP) comes from both the 1985 King County Comprehensive Plan and the King County Transportation Plan. When adopted, the KCNMTP will become an element of the Transportation Plan and will be updated and reviewed as a component of that plan.

The mission of the plan is the integration of the needs of nonmotorized transportation throughout the King County Transportation System, including roads, transit, and trail networks. The plan specifies programs, policies and projects specific to the needs of pedestrians, bicyclists, and equestrians throughout unincorporated King County.

Bicycle Policies and Programs

Bicycle policies developed in the plan reflect the role of the bicycle as a vehicle and transportation option in addition to its more familiar role as a recreational device. Research conducted in the preparation of the bicycle component of the plan has led to the establishment of a network of roads of particular relevance to this transportation function. These roads and the analysis of their particular operating characteristics has led to the development of both a vision of how the system should be modified to enhance safe bicycle access as well as a prioritized list of projects which would meet the most immediate needs of bicyclists on this system.

Definition of bicycle facility design types is an important component of the proposed bicycle policies. The plan attempts to provide for the accommodation of bicycle transportation by defining a variety of design techniques which can be applied to the County road system as appropriate to location, anticipated bicycle usage, and available right of way. While trails planning and development is not directly shaped by this plan, the KCNMTP does propose policies which would integrate the road and trail systems of the County to provide for better and safer access for bicyclists.

Equestrian Communities in King County

The use of County roads by equestrians is addressed in the KCNMTP through the development of policies and projects which seek to preserve access within defined "equestrian communities", and from these communities to regional trail facilities which accommodate horses. The primary techniques for accomplishing this goal involve more creative development of existing right of way to create soft-surface pathways as well as preserving gravel shoulders frequently used by equestrians.

Pedestrian Policies

Pedestrian policies in the plan also encourage more creative use of County right of way, as well as the preservation of existing right of way which may be specifically developed to improve pedestrian access within neighborhoods. The role of traffic calming within residential neighborhoods is discussed, as is the development of land use policies and facility design which encourages pedestrian travel.

Regional Nonmotorized Transportation Issues

The definition of regional issues affecting nonmotorized transportation is one of the main themes of the KCNMTP. While many jurisdictions have plans and programs relating to pedestrians and bicyclists, the plan seeks to establish the framework policies which can consolidate these separate efforts into a regionally consistent and effective network of facilities. Of particular importance in this effort are the investments represented in the development of a high capacity transit system and the state highway system in King County. It is the intent of the plan that the Puget Sound Regional Council and sub regional planning efforts will look to this document for guidance in the development of their respective priorities and projects for pedestrians and bicyclists.

Policies in the plan emphasize the role of education and law enforcement in developing a safer environment in King County for nonmotorized users. In particular, a program which provides bicycle safety education as a sentencing option for bicycle related traffic offenders is proposed.

Implementation/Project Development

Implementation of the policies and projects of the plan is of critical importance in the overall effectiveness of the KCNMTP. While previous bicycle plans in the County have addressed many of the same issues as this plan, it is the integration of these projects into existing County practices which will ultimately determine the KCNMTP's success or failure. Integration of the plan's proposed projects into the Transportation Needs Report and CIP Priority Process allows nonmotorized projects to be evaluated and prioritized as an equal component of the County's overall transportation development program. Specific sources of funding are identified, as well as strategies for implementing projects through refinements in maintenance practices and development review.

The plan identifies 218 high priority projects with an estimated cost of $98.7 million. This cost reflects the development of these projects independent of other initiatives in the same location. In practice, the actual cost of developing these projects may be significantly less as project components are added to other road projects or as on-going shoulder paving efforts address the needs identified in the plan. The dedication of facilities through the development review process or as mitigation for other major projects may further reduce public investment in these facilities.

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NONMOTORIZED PROJECT LIST

List of Acronyms Used - King County Nonmotorized Transportation Plan

AASHTO	American Association of State Highway & Transportation Oficcials
CIP	Capital Improvement Program
ETP	Eastside Transportation Plan
HOV	High Occupancy Vehicle
ISTEA	Intermodal Surface Transportation Efficiency Act
KCNMTP	King County Nonmotorized Transportation Plan
KCTP	King County Transportation Plan
METRO	Municipality of Metropolitan Seattle
MPD	Master Planned Development
NHS	National Highway System
NMAC	King County Nonmotorized Transportation Advisory Committee
NTSP	Neighborhood Traffic Safety Program
PPP	Pedestrian Priority Process
RID	Road Improvement District
RTP	Regional Transit Project
SOV	Single Occupancy Vehicle
STP	Surface Transportation Program
TDM	Transporation Demand Management
3R	Repair, Rehibiliation, and Restoration program
UMTA	Urban Mass Transit Administration
WSDOT	Washington State Department of Transportation

THE RATIONALE FOR NONMOTORIZED TRANSPORTATION PLANNING

CHAPTER 1

INTRODUCTION

The growth of King County in the past twenty years has brought with it many pressures - on services, schools, utilities, and, perhaps most significantly, on a way of life. Perhaps nowhere is this seen so readily than in the demands growth has placed upon transportation. The symptoms are readily apparent - 'peak hour' traffic that lasts many hours, land use patterns which, in order to support the needs of a public dependent upon the characteristics of automobile, have spread growth over an area larger than County government can easily manage.

Some of the effects of this growth on residents of King County, such as increased air pollution, traffic congestion, and accident rates are very visible, while others are more subtle. The pressures of commuting take their toll on the individual, so much so that many citizens are looking for alternatives, in lifestyles, housing choices, and in the means by which they travel.

This document represents the efforts of King County to begin to accommodate a particular style of transportation; one which relies not so much on engines and technology as on a return to perhaps simpler values and economy to meet the needs of the user. Roads and transportation facilities represent some of the most expensive and crucial products of County government - as such, they must contribute not only to a healthy economic climate, but also to the development of communities in which it is healthy to live, and in which access and mobility need not be constrained by automobile ownership.

Nonmotorized transportation represents three specific types of user groups for the purpose of this plan. These are pedestrians, bicyclists, and (in specific areas of the County) equestrians. Each group has different characteristics of concern to the County, yet they all share one common characteristic in that they all rely upon the road system of King County to provide safe access.

This plan will address the needs of these three user groups in relation to the transportation system of King County, based upon a central belief that the roads of the County are intended to move people by any of a number of different travel modes. The plan will examine specific facility needs, and recommend design standards to make these facilities as safe and "user-friendly as possible.

Most importantly, the Plan will define policies, programs, and projects which, taken together, will incorporate the needs of nonmotorized transportation into the everyday functions of County government.

The following mission statement and primary goals summarize the direction and mandate of the policies and recommendations which are incorporated in this plan:

MISSION STATEMENT

To aggressively integrate nonmotorized transportationplans, projects, and programs throughout King County as an essential element of our transportation system and community design.

PRIMARY GOALS OF THE NONMOTORIZED TRANSPORTATION PLAN:

1) **To significantly increase the number of individuals who can safely travel to their desired destinations by nonmotorized means;**

2) **To implement the nonmotorized transportation policies of the King County Comprehensive Plan and of the King County Transportation Plan;**

3) **To incorporate the needs of nonmotorized transportation into existing County programs, projects, policies, plans, and operations; and**

4) **To identify and develop projects and programs which meet these aims.**

GENERAL POLICIES

The following general policies provide the context for the specific policies and recommendations discussed in the Nonmotorized Transportation Plan. These policies are representative of the direction provided by the County Comprehensive Plan, the King County Transportation Plan, and are also indicative of the policy direction provided by other state and regional nonmotorized planning efforts. All of the specific policies and recommendations of the Nonmotorized Transportation Plan are derived from the concepts of the following policies.

G-1 - Environment

The County shall integrate programs and policies supportive of nonmotorized transportation into efforts to meet air and water quality and motor vehicle trip reduction standards established in state and federal legislation.

G-2 - Neighborhoods & Activity Centers

The county should locate and design transportation systems in such a manner as to contribute to the safety, efficiency, and convenience of residential neighborhoods and activity centers. Bicycle, pedestrian, and (where appropriate) equestrian needs shall be incorporated as a central component of this effort, through land uses and desnities conducive to nonmotorized transportation.

G-3 - Energy

Comprehensive Plan policies calling for the development of an energy efficient transportation system should be implemented in part by promoting the use of bicycle and pedestrian-friendly transportation facility design and land use.

G-4 - Intermodal Transportation Systems

The County shall work with transit providers and regional agencies to develop a transit system that is fully accessible to pedestrians and the handicapped, and which integrates as thoroughly as possible the access, safety, and parking requirements of bicyclists

G-5 - Safety and Convenience

King County shall emphasize nonmotorized safety and access in the development of nonmotorized modes as an integral element of transportation planning and facility development

G-6 - Dedicated Facilities/New Development

The development of facilities supporting nonmotorized transportation shall be required as a regular element of the development review process. Incentives should be provided to the private sector to encourage development of nonmotorized facilities beyond those which are required as dedicated improvements

G-7 - Funding Priority

King County should give nonmotorized transportation increased funding priority in order to meet the goals of this plan. This should be accomplished through the expansion of funding for existing programs as well as by placing increased emphasis on the nonmotorized elements of proposed transportation projects.

G-8 - Equestrian

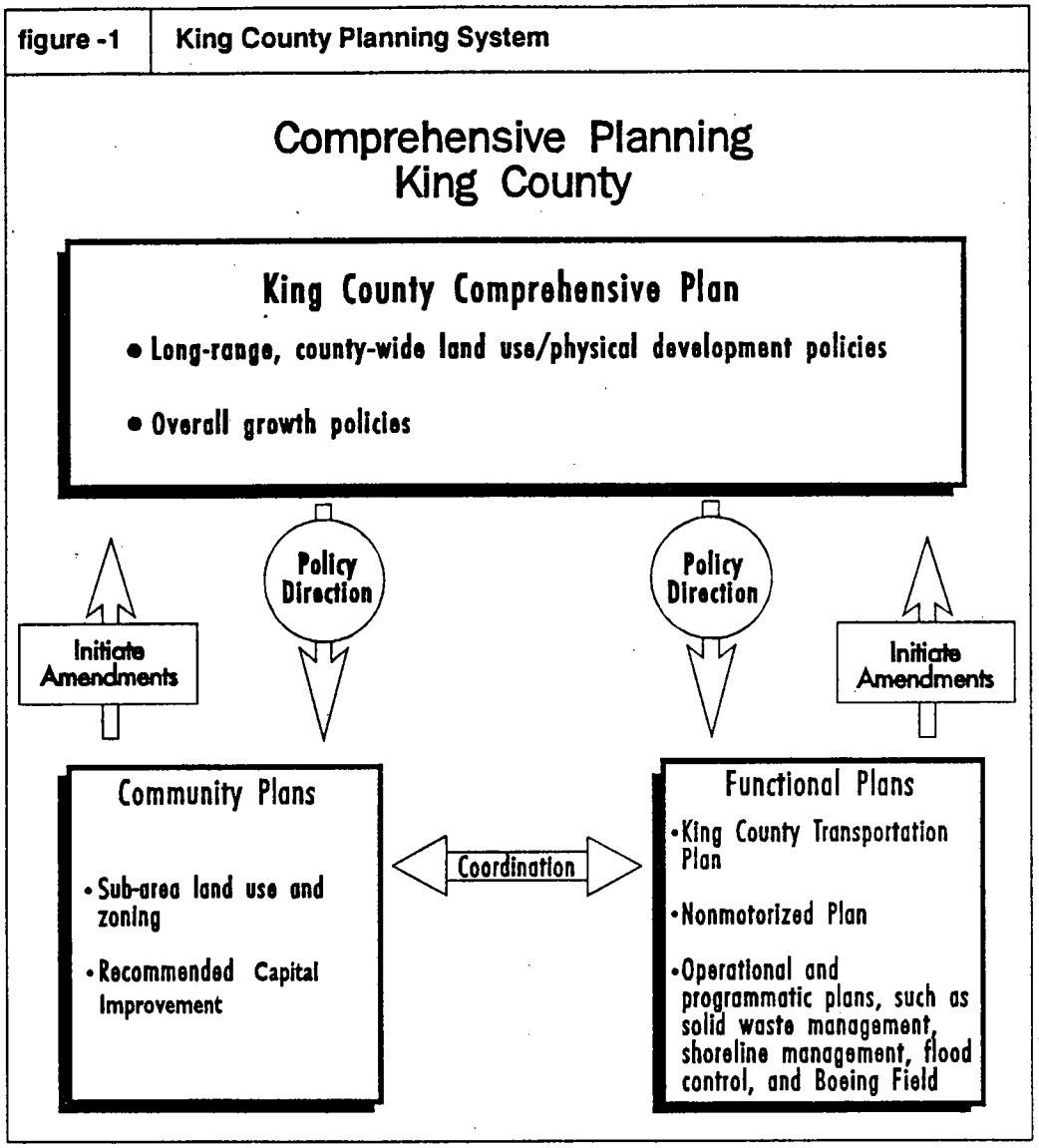
King County should incorporate the needs of equestrian travel in the design of facilities located in areas populated or frequently traveled by equestrians, and strive to integrate these facilities with the other nonmotorized needs of these areas.

THE MANDATE FOR ACTION - THE KING COUNTY COMPREHENSIVE PLAN

The Nonmotorized Transportation Functional Plan is derived from policies and direction described in the 1985 King County Comprehensive Plan. This document defines policies across a broad range of topics, including services, facilities, and land use.

The Comprehensive Plan also provides a context for planning in a three part system. The Comprehensive Plan is the long-range, County-wide land use plan. Second, under the direction of the Comprehensive Plan, community plans establish detailed land use plans and capital improvement recommendations for local subareas of King County. Third, also consistent with the Comprehensive Plan, functional plans are prepared by King County, special service districts, or other public agencies such as Metro. Functional plans address location, design, and operation of public facilities and services as well as action plans and programs for other governmental activities.

figure -1 | King County Planning System



KING COUNTY FUNCTIONAL PLANS

Functional plans are detailed plans for facilities and services, and action plans and programs for other governmental activities. Some functional plans are operational or programmatic, which means they guide daily management decisions. Others include specific details of facility design and location. The Comprehensive Plan spells out specific expectations for functional plans in policies PI-107 and 108:

PI-107 Functional plans for facilities and services should:

a. Define required service levels for Urban, Rural, and Transitional Areas (as defined in the Comprehensive Plan);

b. Provide standards for location, design, and operation of public facilities and services,

c. Specify adequate, stable, and equitable methods of paying for public facilities and services;

d. Be the basis for scheduling needed facilities and service through capital improvement program;

e. Plan for maintenance of existing facilities;

f. Be consistent with the Comprehensive Plan; and

g. Propose specific amendments to the Comprehensive plan when needs for change have been identified in the functional plan process.

PI-108 Functional plans should be developed through public processes inviting review and comment from affected County citizens and agencies.

COMPREHENSIVE PLAN POLICIES APPLICABLE TO NONMOTORIZED TRANSPORTATION

The Comprehensive Plan set out a significant number of policies which are designed to be applied to County activities relating to non-motorized transportation. Some of these policies are specific in targeting cycling and equestrian interests, others pertain directly to pedestrians, and others dictate the manner in which the County will plan and program a broad range of activities that have an effect on nonmotorized interests.

The following is a listing of comprehensive plan policies relevant to nonmotorized transportation:

F-201 **Safety and accident prevention are paramount considerations in the design of all County transportation facilities.**

F-203 **The use of energy efficient transportation facilities is encouraged in appropriate locations.**

F-213e **Safe and efficient bicycle and pedestrian circulation is to be allowed in the design of commercial and industrial areas.**

F-214 **Establish design guidelines for pedestrian and some bicycle facilities in commercial (retail and office) areas.**

F-216 **Residential Street Design (should provide for)**

e. separation of neighborhoods from through traffic.
f. providing safe and convenient access to schools, parks, and shopping for pedestrians and cyclists.

F-217 **Residential streets should be designed to provide the safest possible environment for cyclists, pedestrians, and children.**

F-227 **Safe and convenient pedestrian and bicycle access should be provided at transit centers.**

F-234 **Pedestrian and bicycle travel should be encouraged as a convenient, healthy, and energy efficient means of transportation and recreation. Safe and convenient pedestrian and bicycle access should be provided between residences and nearby schools, business areas, and transit routes. County standards for pedestrian and bicycle facilities should be applied consistently and equitably to all development.**

E-201 **Lands should be preserved for active recreation ... including trails.**

RL-411 **Protection for non-motorized travel should be provided at sites of extractive operations.**

THE KING COUNTY TRANSPORTATION PLAN

The first step in assuring a safe and efficient transportation system is the development of a comprehensive, long-range transportation plan. A well developed plan provides the necessary guidance for future actions that will ensure an adequate and cost effective transportation system.

The 1988 King County Transportation Plan represents one of the first functional plans to be adopted under the mandate of the King County Comprehensive Plan and provides specific direction for the development and operation of necessary transportation facilities and services. It provides guidance

for land development in the County and provides an important mechanism to coordinate the actions of the County with those of other governmental agencies.

The Transportation Plan also alerts County residents and businesses about future changes in the transportation system that will affect their neighborhoods, communities, and personal travel. The expectations developed through this plan are critical in the development of partnerships with private developers and citizen advocacy groups alike, as the private sector becomes an increasingly important partner with the County in provision of needed transportation facilities.

Transportation Plan Concepts Relating to Nonmotorized Transportation

The King County Transportation Plan is built on several key concepts which shape the Nonmotorized Transportation Functional Plan. As an element of the KCTP, the NMTFP is designed to integrate both its policy and project recommendations into the general transportation planning framework of the County.

"The 1974 Transportation Plan focused primarily on planning for the private automobile. Since then, there has been an increasing emphasis on providing for all transportation modes, including the private automobile, transit, bicycles, pedestrians, and equestrians. The objective of the current planning program has been to develop a balanced, comprehensive transportation plan that meets the needs of each of these travel modes, and providing a transportation system that accommodates the wide variety of travelers in the County."

1988 King County Transportation Plan

FORMAT OF THE NONMOTORIZED TRANSPORTATION PLAN

The King County Nonmotorized Transportation Plan is intended to outline the policies and general methods by which decisions which affect nonmotorized transportation will be made. The document is divided into several sections, the first of which describes issues and policies specific to the individual Community Plan Areas of the County, followed by chapters detailing the facility and programmatic needs of bicyclists, pedestrians, and equestrians Countywide. The chapters in which these issues are described are summarized with policies for the development of projects and programs, with specific recommendations for their implementation.

Subsequent chapters describe how the County nonmotorized transportation planning effort is affected by and can affect regional transportation planning efforts, and how the County should approach the development and implementation of specific projects, both through existing roads funding and planning mechanisms as well as through linkage with other County and regional planning and development review mechanisms. The plan includes a listing of projects included in the Transportation Needs Report which affect nonmotorized transportation safety and access, including both new projects and proposed modifications to existing projects. Finally, an Appendix, which includes summaries of the King County Pedestrian/Bicycle-Motor Vehicle Collision Study and the State of Washington Bicycle Policy Plan, is attached for reference.

COMMUNITY PLAN AREA PROFILES AND ANALYSIS

COMMUNITY PLAN PROFILES

Community Plans represent the source of most specific projects which are incorporated in the King County Transportation Plan. Similarly, the Nonmotorized Transportation Plan looks to the Community Plans and the plan areas themselves for specific direction on the identification of projects and needs for nonmotorized transportation in the neighborhoods of King County.

Before that can occur, however, a baseline of information is needed to assess the generalized needs and deficiencies of the nonmotorized transportation system in each of these areas. This Chapter will present a synopsis of this analysis as applied through both information from existing community plans as well as from research conducted for the Nonmotorized Transportation Plan.

Proposed Bicycle and Pedestrian Project Maps of all community planning areas begin on page 167.

EXISTING COMMUNITY PLAN POLICIES

Many of the project and program recommendations of the Nonmotorized Transportation Plan are developed from policies and projects listed in the individual Community Plans as previously developed by the County. The following is a summary both of these identified Community Plan issues and policies as well as a brief summary of other issues and needs identified during the development of the plan.

The following community plan profiles also reflects information collected and presented in the **Pedestrian/Bicycle - Motor Vehicle Collision Report** conducted by the Department of Public Works and the Harborview Injury Prevention and Research Center. A summary of the overall findings of the Collision Report is contained in Appendix B of this document.

BEAR CREEK

The Bear Creek Planning Area east of Redmond is one that is currently undergoing a tremendous amount of scrutiny as a potential urban "frontier" under the recently adopted Growth Management Act. Issues of how much and where urban development will occur in Bear Creek will be of significant importance to the full range of nonmotorized modes, as the Bear Creek area remains one of King County's largest and most active equestrian communities.

The Bear Creek Community Plan and the Open Space Plan have both identified a large number of trail development opportunities in Bear Creek. Several of these opportunities are reflected in the presence of existing utility rights of way, including the Tolt Pipeline Trail, the Pacific Northwest Gas Pipeline, and the Puget Power Trail. Each of these is considered a major route for both equestrians and mountain bikes, with long term development plans possibly including parallel paved multi-purpose trails.

The center of equestrian attention in the planning area is the Redmond Watershed immediately north of Novelty Hill Road. Already a popular equestrian destination, the Watershed is located at the convergence point of several trail corridors. The enhancement and preservation of access on road right of way is seen by the equestrian community as essential to the long term viability of this area for equestrian use.

A major element of the local trail system is potentially to be incorporated in the design and development of the two Master Planned Developments (MPD's) planned for the Novelty Hill Road Area immediately east of the watershed. The degree to which trail design and general nonmotorized access is incorporated into the design of these communities might be viewed as a precedent for other such developments in King County.

Bicyclists are also frequent users of the road system of Bear Creek. Ames Lake, Avondale, Union Hill, and Novelty Hill roads are all extensively used by recreational bicyclists to reach the roads and destinations of the Snoqualmie Valley. Significant amounts of paved shoulder have been provided through development dedication on Union Hill Road, while additional shoulders have been provided on Novelty Hill Road. Bicycle lanes are programmed for the redevelopment of Avondale Road north to the Woodinville-Duvall Road.

Woodinville-Duvall Road is considered a critical link for pedestrians, bicyclists, and equestrians in the potential access an improved road facility would provide to each user group. As a heavily traveled arterial, however, the development of bicycle lanes and separate trail facilities are both considered necessary to substantially improve nonmotorized conditions in this east/west corridor.

Study Corridors - Bear Creek

Novelty Hill Road - The potential development of the Port Blakeley and Quadrant Master Planned Developments will significantly change the nature of the road for bicyclists, equestrians, and pedestrians both through increased traffic volumes and the introduction of new intersections, driveways, traffic control devices and turning movements. Both the review of the MPD's and future road project scoping should address the needs of nonmotorized users

between the new community and Avondale Road. The potential for vertical separation of trails and paths which will cross the arterial should also be assessed.

New North/South Arterial - Also associated with the development of the MPD's is construction of a new principal arterial running north/south through the Bear Creek planning area. Potential issues include integration of separated trail facilities and the accommodation of bicyclists on the roadway itself. The question of the access barriers created by the road should be addressed in the scoping of the arterial project.

EAST SAMMAMISH

Currently under development, the East Sammamish Community Plan is attempting to address the impacts of rapid urban development, as well as to integrate nonmotorized facilities as a component of that development. A need to retrofit ped and bike facilities on main arterials as well as to include them in new road construction has been identified, as has been a need to incorporate equestrians in particular areas and corridors which connect with the existing and proposed County trail system in the area.

These connections to the proposed trail system are very important, as they will be developed in large measure through developer contributions on adjacent County roads, and through integration of trails and paths within the new developments.

The plan identifies the need to make connections to the bike/ped facility under construction on East Lake Sammamish Parkway, as well as to any trail which would be built on the nearby railroad right of way if and when that right of way is abandoned by the Burlington Northern Railroad. The development of compatible facilities on both shoulders of the roads which circumnavigate Lake Sammamish is a vital issue to local bicyclists, who have long identified a loop around the lake as one of their most desired projects. The development of the Southeast 56th Street project in Issaquah will bring that project one step closer to completion.

Study Corridors - East Sammamish

Issaquah-Fall City Road - (East Sammamish Parkway to Issaquah Pine Lake Road) This road provides access to the East Sammamish plateau from Issaquah and Lake Sammamish State Park. Current traffic volumes and roadway profile makes this a potentially hazardous roadway for bicyclists. Improvement of this corridor or a parallel route should be studied.

SR. 520-202 Interchange - The development of an interchange in Redmond at this location should consider bicycle pedestrian access as a primary issue.

The interchange location is immediately adjacent to a rail line which has been identified as a potential trail corridor in the King County Open Space Plan. The development of an interchange with multiple free turning lanes on approach ramps will create a hazardous situation for both bicyclists and pedestrians and requires mitigation.

EASTSIDE CITIES

Another predominantly incorporated area of the County which has received perhaps the most attention on nonmotorized issues is the Eastside, including Redmond, Kirkland, Mercer Island, Bellevue, Bothell, and the towns of Beaux Arts, Evergreen Point, Yarrow Point, and Medina. While many of these communities have established nonmotorized transportation planning programs, there are a number of issues which reach across jurisdictional borders.

Many of these issues were defined and addressed in the development of the Eastside transportation Program (see Chapter 6 - Regional Issues), including the identification of a corridor system of key bicycling streets (see map insert). Since that time several proposals have surfaced which are being seriously considered by a number of communities and transportation agencies.

Most prominent among these is the proposal to develop a separated pedestrian/bicycle trail along the SR-520/Evergreen Point Bridge corridor between Seattle and Redmond. The development of such a corridor would directly serve the University of Washington, which is the single largest generator of bicycle commutes in the State of Washington. The development of the trail (under consideration by the WSDOT) would open up the potential of cross lake commuting to potentially thousands of bicyclists in Seattle and on the Eastside for whom the I-90 Trail is neither convenient or (during peak hour) particularly accessible.

The freeway system of the Eastside is a major barrier to nonmotorized access. Existing bicycle and pedestrian facilities crossing I-90, SR-520, and I-405 are somewhat limited, and should be both preserved and enhanced in conjunction with other road system development. Of particular interest is the preservation of nonmotorized access along Northeast 124th Street, from Kirkland, through the Totem lake activity center, across the Sammamish Valley, and over English Hill to the equestrian areas of Bear Creek and the existing trail systems of Redmond and King County. Also noted by bicycle advocates is the opportunity for north/south access through the entire Eastside should the existing Burlington Northern right of way between Renton and Woodinville become available for trail development. Such availability is not likely in the near future as the line is currently active.

ENUMCLAW

The Enumclaw Plateau is an area popular among the whole range of nonmotorized users - recreational bicyclists, equestrians, and pedestrians. The area is principally rural, with many acres of farmland preserved by the purchase of development rights by the County in the 1980's. As a result, facility needs for nonmotorized transportation tend to be more passive, and focused on alternative treatments of existing road shoulders.

To the bicyclist, Enumclaw is a very popular place for recreational riding, with vistas of Mount Rainier and the Cascades mixing with low traffic volumes to create a pleasant bicycling environment. Enumclaw is located near the very popular Green Valley Road, and near the proposed Foothills Trail in Pierce County. The draft Regional Trails Plan also calls for development of a County multi-purpose trail which would link to the Pierce County system. Trail development opportunities on the intended right of way have been lost within the City of Enumclaw.

Bicyclists also use SR 164 and SR 410 as access routes to Mount Rainier National Park, and the WSDOT and the National Park Service are responding by proposing improvements to the Mather Memorial Highway (SR410) east of the City of Enumclaw to accommodate the growing numbers of recreational bicyclists. The King County Fairground in Enumclaw is the start and finish of the annual RAMROD (Ride Around Mount Rainier in One Day) recreational cycling event. Participants in this event utilize Mud Mountain Road as well as 284th Ave Southeast near the fairground.

While there is a large and significant equestrian presence on the plateau, much of it is based in the breeding and training of horses, including thoroughbreds. This is in contrast to equestrian communities in Bear Creek and Northshore, where there is a great demand for development of equestrian facilities on road shoulders. This demand can be met in Enumclaw primarily through the retention of unpaved shoulder space along most County roads in the planning area. Recent changes in the thoroughbred industry caused by the closure of Longacres racetrack may change the equestrian character of the plateau.

As the plateau grows in population, there will be a greater demand for pedestrian facilities in currently rural areas. While the general recommendation for pedestrian facilities in these areas includes provision of paved shoulder space, project specific consideration should be given to alternatives ranging from sidewalk development (in areas where sidewalks have already been dedicated) to Neighborhood Pathway development where equestrian access is a concern.

FEDERAL WAY

While most of the area commonly known as Federal Way incorporated in 1989, the County still has jurisdiction over an area east of I-5 which is significant to nonmotorized transportation. The City of Federal Way is located adjacent to the employment and transportation centers of the Green River Valley, and roads leading down the valley wall to these centers are used by bicycle commuters. In addition, the unincorporated area of Federal Way generally has little in the way of pedestrian facilities, either in sidewalk development or in shoulder paving.

Much of the County neighborhoods retain a distinctly rural quality, even as new housing develops in the area. A significant challenge for the County in the development of new housing and in the management of the roads system in the area is the linking of dedicated sidewalk facilities adjacent to new development with the need for more comprehensive shoulder paving and pedestrian facility development. While it may be many years before enough right of way and sidewalk dedication occurs to create a continuous system of facilities, the increased traffic generated by these developments will create hazardous conditions for local pedestrians without some interim measure.

Another element of nonmotorized circulation in Federal Way is represented by development of a trail in the Bonneville Power Administration right of way between the Pierce County line and the Tacoma Water Pipe #5 in the Green River Valley. Development of the trail (known as City Pride Park in the City of Federal Way) would provide a direct link for bicyclists and pedestrians between residential areas and commercial, transit, and employment centers, as well as a separated crossing and alternative to S. 320th Street over I-5. Development of trail further east would likely involve the redevelopment of road right of way on one of several alternative corridors down the valley wall to the Cities of Kent and Auburn.

Study Corridor - Federal Way

Military Road (Pierce County to Sea Tac) The entire length of this road could provide a popular north south corridor for both recreational and commuting bicyclists. Needs in the short term include consistent shoulder paving, while eventual road development should include sidewalks and bicycle lanes.

GREEN RIVER VALLEY AREA

While predominantly an incorporated area of the County, the Green River Valley represents an area which has grown significantly in popularity for

nonmotorized users in recent years. The development of the Interurban Trail by the County has been matched by local communities with trail development and road "set-asides" as recreational corridors in Tukwila (Christensen Trail), Kent (Frager Road), Federal Way (BPA/City Pride Park trail), and Auburn (Green River Trail, Tacoma Pipeline #5 Trail). The development of these facilities, along with the linkage of the City of Seattle trail system (Duwamish/Alki Trail) via the County development of the entire 32 mile Green River Trail corridor could create an unusually effective nonmotorized transportation system throughout South King County.

Limitations to the utility of this system exist in the lack of either safe or convenient access along the arterials which run east/west through the Valley. The development of proposed high capacity transit systems through or near the valley will focus additional attention on the ability to both move commuter bicyclists to the system as well as to allow for pedestrian-compatible land uses and access in close proximity to that system. The development of bicycle and pedestrian compatible land uses and transportation facilitites can significantly increase patronage and markets for the new system (from the Nonmotorized Access Study, Regional Transit Project - 1991).

The barriers represented by the east/west arterials are described both in terms of topography and in the lack of space available to bicyclists and pedestrians on existing routes. The inclusion of full nonmotorized facilities in the development of new or reconstructed arterials in the Southeast 200th Street and Southeast 272nd Street corridors should be considered a significant element of these projects.

HIGHLINE

The Highline community planning area represents an area developed largely without significant pedestrian or other nonmotorized facilities over the past four decades. The area also has the highest rates (by far) of pedestrian and bicycle collisions with motor vehicles of any planning area in the County. While the relationship between accident rates and the lack of facilities is by no means absolute, the need to aggressively improve and develop nonmotorized (and particularly pedestrian) facilities in this area has been identified in recent planning efforts.

This focus has been a major topic of concern in subareas such as White Center and Burien. While the development of a wide range of facilities is both desired and needed in these areas, a similar commitment to pedestrian education and active law enforcement need to be continued if accident rates are expected to decline in the near future. Significant numbers of the accidents studied by the County during the years 1985-1990 involve alcohol consumption, either by the driver or by the victim of the collision.

Business centers in the area are also in need of pedestrian facility development and maintenance. Older business areas typically have sidewalks which are uneven, interrupted by numerous driveways, and are occasionally discontinuous.

The promotion of bicycle facilities in the Highline community will be difficult, given the minimal right of way set aside for roads at the time of development. The development of bicycle lanes will necessitate the elimination of significant on-street parking, an option which should be considered on larger arterials but which must be weighed against the needs of local residents on certain collector arterials which also serve as residential streets.

An alternative to bike lane development in Highline is represented by efforts which the County may undertake to install traffic control devices in residential neighborhoods. Most effective in environments which include grid-pattern streets, devices such as traffic circles and chokers have made long sections of residential streets in Seattle attractive bicycling alternatives to congested arterials, without the need to acquire additional right of way for lanes or paved shoulders.

The County should also aggressively investigate available opportunities to utilize undeveloped road right of way and utility corridors to provide separated pathways in urbanized areas of Highline. Road vacation requests should be carefully considered in light of the resource that the right of way may represent to pedestrians and bicyclists.

Study Corridors - Highline

Orillia Road This is a popular commuting route for bicyclists seeking access to the employment areas of the Green River Valley. Bicycle and pedestrian improvements should be included in any road project on this link, and should connect to nonmotorized facilities proposed for development in the South 200th Street corridor.

Renton Avenue South (Seattle to Renton) The West Hill Community Plan (proposed) calls for the possible reduction from four to three lanes, providing an opportunity for bicycle facility installation. Sidewalk improvements are also a priority need in this corridor.

Duwamish/Skyway Connector The County should study alternatives for providing a nonmotorized link from the Duwamish/Green River trail to the Skyway/West Hill area, where another trail is proposed by the West Hill Community Plan. Access across I-5 will be a significant issue to address.

64th Street South/68th Avenue South (South 129th Street to Renton Avenue) This two lane arterial has sufficient paved width to allow the inclusion of bicycle lanes. This street provides access through the Skyway community.

Southwest 104th Pedestrian Facilities The Southwest 104th Street corridor through White Center currently includes several pathway facilities which link key community facilities with residential neighborhoods. Continuation of this system would greatly enhance pedestrian access in the White Center community.

16th Avenue Southwest Pedestrian Facilities An assessment of the condition of pedestrian facilities in the White Center business district is needed to make improvements. The condition of sidewalks in the area has deteriorated to the point of obstructing access to citizens relying on wheelchairs or other assistance for pedestrian mobility in the area.

NEWCASTLE

Located east of Lake Washington in a rapidly urbanizing area of King County, the Newcastle community represents another area in which nonmotorized transportation issues are continually being addressed. The current Community Plan, adopted in 1983, discusses the need to provide for nonmotorized transportation facilities in the vicinity of activity centers for pedestrians and bicyclists, and to focus equestrian facility development in rural areas where conflict with autos was perceived to be less likely. Other trail systems were envisioned which would serve as access to the Cougar Mountain Regional Wildland Park for a variety of user groups, although bicyclists have subsequently been banned from the park itself.Pedestrian facilities cited in the plan were generally of two types: urban walkways associated with the existing and planned road network; and separate hiking trails serving more remote areas in the vicinity of Cougar Mountain. Equestrian facilities were general considered to be preferred if located as part of a separate trail system, although certain specific roads were identified for shared shoulder facilities due to the lack of acceptable alternative routes.

May Valley Road (mentioned in the Tahoma/Raven Heights section) continues westward through the community, continuing to Coal Creek Parkway, location of one of the County's first Class II bicycle facilities. The Parkway itself is a significant linkage to the Lake Washington Trail which parallels I-405 between Bellevue and Renton, and is currently the subject of a design study which has as one of its goals the improvement of access to the trail.

This trail has become a critical link in the route bicyclists use to circumnavigate Lake Washington, and was constructed at the same time as I-405 was both widened to accommodate an HOV lane and when the freeway was closed to bicycle access. In addition to its recreational value, the trail has become a significant bicycle commuting corridor between the Bellevue CBD and the Boeing plant in Renton.

The development and the preservation of nonmotorized access on existing roads and across the barriers created by freeways remain principal issues in Newcastle. West Lake Sammamish Parkway has for years been a popular corridor for bicyclists and pedestrians between I-90 and Redmond, but the two-way design of the existing bicycle lane is considered substandard and potentially hazardous for northbound (counterflow) traffic. Also in the vicinity, West Lake Sammamish east of the Newport Way interchange is programmed to receive shoulders on the current CIP project list. These projects, taken with the completion of bicycle lanes on East Lake Sammamish Parkway, can finally allow for enhanced bicycle access around all of Lake Sammamish from Issaquah to Redmond and back.

The question of access to Cougar Mountain and its surrounding neighborhoods remains a significant one to many users and potential users of the popular County Park. The development of Lakemont Boulevard will include facilities for both pedestrians and bicyclists, while the retention of at least wide shoulders on Newport Way is envisioned in this plan.

As with other neighborhoods bounded by freeways, the I-90 and I-405 corridors need to be comprehensively studied for nonmotorized access improvements across their respective rights of way. The development of trail facilities along the I-90 corridor from Seattle to Eastgate may additionally be considered in the future for linkage to the urbanizing areas east of Eastgate. Eventual development of the corridor to Issaquah would have significant potential for improving commuter access throughout the area and to strengthen conections to the Sound to mountain greenway and the Cross-State Trail.

Study Corridors - Newcastle

Southeast 60th Street (Lake Washington Boulevard to Coal Creek Parkway) This street links a popular regional trail along I-405 to residential neighborhoods, parks, and schools. Shoulder development is currently proposed for the street, while consideration should eventually be given to a street profile with bike lanes and sidewalks included.

May Valley Road - (Coal Creek parkway to Issaquah-Hobart Road) This corridor is popular among many different types of nonmotorized users, including hikers, equestrians, and bicyclists. Current right of way constraints

do not allow immediate development of parallel facilities, even as traffic volumes grow on this arterial. Consideration should be given to either functional changes in the road allowing better nonmotorized access and safety, or to development of a trail in the same general corridor.

NORTHSHORE

Another plan has recently been prepared for the Northshore area of north King County. A major emphasis of this plan is on integration of trails and roads into a complete network of facilities compatible to a wide range of users, including a significant equestrian population. An on-going issue in the area has been the completion of the "Missing Link" between the Burke-Gilman and the Sammamish River Trail Systems, both of which traverse Northshore. Once completed, a corridor of separated trail facilities will reach from Redmond around the north end of Lake Washington and south to Seattle in the Ballard neighborhood.

The plan also includes a heavy equestrian emphasis in facility identification, including the development of the County's first neighborhood pathway system in the Hollywood Hill neighborhood of Woodinville. Such a system would provide a linkage to Sammamish Trail and Tolt Pipeline Trail, both of which are significant regional equestrian corridors.

Pathway development in older neighborhoods which might not otherwise qualify for sidewalk development is also seen as a significant element of the Northshore Plan's nonmotorized vision.

Class II bikeway development is seen as important in the more urbanized areas of Northshore. This would provide both access as well as be consistent with the adopted plans of Bothell, Redmond, and Kirkland, and with the adopted Eastside Transportation Program bike network.

Other facilities issues of note in Northshore include the Juanita Drive Class II bikeway, safe east/west access between Woodinville and Duvall, connections to the Snohomish County trail system and inclusion of nonmotorized facilities in the development of the Juanita -Woodinville Way - NE 160th Street CIP project. Equestrian issues in Northshore are described in Chapter Five, "Equestrians in King County".

Study Corridors - Northshore

68th Avenue Northeast Accommodation needs to be made in the design of the bridge which crosses the Sammamish River near Kenmore. This road (which is located on the signed Lake Washington Loop bicycle route) links the Burke-Gilman Trail to recently developed bicycle lanes on Juanita Drive. A study should evaluate the potential of widening the bridge, devel-

oping a separate nonmotorized facility, or redeveloping the bridge to a standard which provides better nonmotorized access.

Willows Road Extension Any extension of Willows Road north to Northeast 145th Street should specifically address pedestrian, bicycle, and separated equestrian access. The proposed extension would link trails, on-street facilities, and neighborhoods with active nonmotorized elements.

SHORELINE

The Shoreline Community is a more urbanized area than most in the County. It is typified by traditional post-war County residential development - few sidewalks on local streets, no bicycle facilities, and negligible trail or pathway development linking community facilities and commercial areas.

In addition, the presence of both I-5 and Aurora Avenue have created signifi cant barriers to nonmotorized transportation east/west through the community. Many popular destinations and corridors for nonmotorized transportation in the community would be made more accessible with the development of dedicated facilities such as sidewalks, paved shoulders, and separated paths. These destinations include Shoreline Community College, the Cerebral Palsy Center, and the Aurora Village Shopping Center. Many bicyclists pass through the Innis Arden neighborhood from Seattle to Edmonds and the ferry to the Kitsap Peninsula.

The proposed Shoreline Interurban Trail would provide a north/south alternative to the congested conditions on Aurora Avenue, as well as provide significantly improved pedestrian access for residents of communities along both sides of this prinicpal arterial. Sidewalk and pathway development should support access to the trail, as well as provide a linkage to the Burke-Gilman Trail at Lake Forest Park.

Any transit system development on a northern corridor should pay particularly close attention to the access needs of adjacent neighborhoods, and to the development of new access routes along and across the system as it passes through Shoreline.

Study Corridors - Shoreline

Richmond Beach Road (Richmond Beach to Fremont Avenue) Development of this corridor could meet a critical need for east/west nonmotorized access in Shoreline. Inclusion of sidewalks and bicycle lanes is recommended if the road is redeveloped or if the configuration of the road is changed from four lanes to three.

Dayton Avenue (Richmond Beach Road to Westminster Way) Dayton Avenue potentially provides excellent north/south access for bicyclists through Shoreline, given current levels of traffic and terrain. Shoulder paving would meet the current facility improvement needs, although sidewalks and bike lanes are eventually envisioned for this corridor.

Ashworth/Meridian Avenues (Northeast 145th to Northeast 205th Streets) These two parallel streets could provide good access through Shoreline for nonmotorized users should the Interurban trail not be built. While not a substitute for a trail facility, development of nonmotorized improvements would improve access and safety for a large number of potential users.

Northeast 182nd Street/Northeast 178th Street (15th Avenue Northeast to Lake Forest Park) This section is a key link in an east west corridor linking Shoreline to the Burke-Gilman Trail. Full development of the corridor would include sidewalks and bicycle lanes.

North 165th Street/North 167th Street (Dayton Avenue to 25th Avenue Northeast) Development of a nonmotorized corridor (including an overpass of I-5) would provide an ideal low-volume east/west corridor. The study should address the best location for a crossing and route selection which minimizes elevation barriers.

SNOQUALMIE

The Snoqualmie Valley, with rural roads, quaint towns, tourist destinations, and mountain vistas has become one of the most popular bicycle touring areas in the State of Washington. Many special events for bicyclists and walkers are held in the Valley annually, so much so that a perception of conflict exists between local residents and the groups which use these roads for both organized and informal events.

Equestrians are also frequent users of road shoulders in the Upper Valley near Snoqualmie and North Bend, while trail development throughout the area - while it may result in some trips being diverted from local roads - promises to bring more users to the area than ever before. Most of the roads in Snoqualmie are rural, and are considered attractive (particularly to bicyclists) in part to their undulating and occasionally twisty character. The mix of this type of roadway, high nonmotorized use, and local residents who know how to drive these roads quickly is the principal source of conflict and occasional hostility between residents and visitors to the area.

Perhaps more than in other areas of the County, effective education and enforcement efforts may play a more significant a role in the lowering of tensions in the community as the actual construction of trails and road

shoulders. Such an effort should be directed towards both the bicycling and local communities (an effort which as already been started by the Cascade Bicycle Club and other local organizations).

While development of safety and education programs is a high priority in the promotion of a safe and accessible road system in the planning area, there are also some immediate physical facility needs as well. The function of arterials in the planning area is mostly ascribed to the area's state highways, each of which would benefit from the development of paved shoulder facilities. Local roads in the equestrian areas of the upper valley should be reviewed for either the preservation of existing unpaved shoulders or the development of Neighborhood Pathway facilities. In addition, proposed development of trail facilities along SR-18 implies a need to develop a similar facility in the Snoqualmie Ridge MPD to serve the MPD, Tiger Mountain recreational use, the trail system of the City of Snoqualmie, and the proposed Cross State trail through the Snoqualmie Pass/I-90 corridor.

Study Corridor - Snoqualmie Valley

Carnation By-Pass - The development of a road or trail linking the northern and southern sections of Snoqualmie Valley Road west of Carnation in the vicinity of Mc Donald Park would enable bicyclists to completely by-pass the congested conditions on SR 203 while traveling the length of the valley.

SKYKOMISH CORRIDOR

While the road system of the Skykomish Valley along US 2 in King County is somewhat limited and rural, the Stevens Pass Corridor is nonetheless very popular for cross-state (and transcontinental) bicycle tourists. On-going road maintenance efforts in the corridor should be reviewed with the goal of providing an attractive by-pass to the congestion of US 2 between the town sites of Grotto, Skykomish, and Baring. County management of the old Stevens Pass Highway should also be consistent with efforts to develop the Iron Goat Trail by the United States Forest Service in the immediate area of the pass.

SOOS CREEK

Adopted in 1992, the Soos Creek Community Plan extensively addresses issues relating to nonmotorized transportation. The emphasis of the nonmotorized transportation element of the plan and of its Citizen Advisory Committee was on pedestrian and bicycle safety and access, in that order. Equestrian issues were to be addressed on a case-specific basis such as near the Lake Youngs and Soos Creek trails.

The plan envisions thorough development of urban class II bikeways on arterials in the growing residential areas of the Soos Creek Plateau, with the significant admonition that residential development should provide access to arterials for pedestrians and bicyclists independant of the road system itself. The Plan holds that education of the public in the needs and characteristics of nonmotorized transportation is an important issue to be addressed in the schools and amongst the general public.

Specific facility interest in the plan include access to several trail systems, including the Soos Creek Trail, the Lake Youngs Trail (soft surface), and the eventual dedication of a separated paved multi-user facility along SR-18 from Green River Community College to I-90 as an element of the WSDOT upgrading of the highway.

Issues relating to nonmotorized access also are focused upon the barrier represented by the topography of the plateau, and the effect of that barrier upon access to the commercial/industrial/employment centers of the Green River Valley, and to any eventual high capacity transit system. The inclusion of nonmotorized facilities on any new arterial in the S. 277th Street corridor (and possibly at the S.200th Street corridor) is seen as essential in providing linkages outside the immediate planning area. To the north, access to the Cedar River trail corridor is also identified as an issue to be addressed both through trail and on-road facility development.

Other destinations which could be better served by nonmotorized transportation facilities include the Green River Community College, the Petrovitsky Road corridor, and the Benson Highway/SR 515 corridor.

Study Corridor - Soos Creek

Southeast 168th Street (Old Benson Highway to 128th Avenue Southeast) Striping of a bicycle lane would provide the only usable facility for bicyclists in the Benson Hill area.

TAHOMA/RAVEN HEIGHTS

The Tahoma/Raven Heights area is another generally rural area which is very popular among bicyclists, hikers, and equestrians alike. The May Valley Road has traditionally been very popular among all three user groups, even though right of way along the corridor is very limited. To the south, many roads in the planning area are very popular for both individual and organized group bicycling, including the roads in the vicinity of Black Diamond and the Green River Gorge.

A specific access issue to the Tahoma/Raven Heights area centers on the Tiger Mountain State Forest. The forest is very popular with hikers, mountain bicyclists, and equestrians, even though there are relatively few access points to the mountain. Proposals by both the Department of Public Works and the Office of Open Space to include a trail in the redevelopment of SR-18 would significantly improve safe access to the popular east entrance to the forest.

There are several trails planned or under development in the Tahoma/Raven Heights Community Planning area, including the Cedar River Trail and the SR-18 proposal. Overlay shoulder development has improved access for bicyclists and pedestrians on the Issaquah-Hobart Road, and should be considered as an element of overlay proposals throughout the planning area.

VASHON ISLAND

As with the Snoqualmie Valley, the rural setting and lightly traveled roads of Vashon Island have made this community planning area both a popular bicycle touring area and active equestrian community. Given the low population and traffic on the Island, the ability of both equestrians and bicyclists to travel on the road system or its shoulders are somewhat compatible. The major shoulder development which would be of real benefit to bicyclists is limited to the Vashon Highway between the ferry terminals of Talequah and Vashon (with particular emphasis on the hill climbs from the two terminals), while equestrians desire unpaved shoulders or pathway facilities elsewhere on the Island. Project proposals should be reviewed in accordance with progress on the development of an Island trail system by the local recreation board and Trails Committee.

Pedestrian safety is an on-going concern of Island residents, particularly along the highway and in the townsites of Vashon and Burton. Continued development of sidewalks and pathways in these areas is a recommendation of the Nonmotorized Transportation Plan, as is the development of a pathway facility between Burton and the County Park at Jensen Point.

BICYCLING IN KING COUNTY

AN OVERVIEW OF BICYCLING IN KING COUNTY

Within the past twenty years, bicycling has become one of the popular images of King County, Seattle, and the Puget Sound region in general. Whether the image is of commuters making their way downtown, tourists making their way by the thousands to Portland each June, or national-caliber sprinters making their way to the finish line at the Marymoor Velodrome, bicycling has become associated with a way of life and transportation in King County. Bicycling Magazine has consistently cited local communities as among the best in the nation for bicycling, while television has focused repeatedly on the affinity our citizens have developed for two wheel transit.

King County Government, as described in the first chapter, has also developed policies and specific programs dedicated to the promotion of bicycling as an energy and environmentally sound means of transportation. This chapter of the Functional Plan will identify specific issues related to these adopted policies, and develop specific action strategies and projects for implementation through the devices of the King County Transportation Plan and the Community Planning Process.

Certainly, we can look at the diversity of local cycling and see growth in many areas. Recreationally, bicycling is enjoying unprecedented popularity nationwide. According to the Bicycle Institute of America, over 90 million Americans ride a bicycle, the majority now being adults. Of that 90 million, over 23 million indicate that they ride regularly (at least once a week), and almost four million have used a bike for vacations and/or in special events.

Commuter cycling is also growing nationally, with some 3.2 million Americans now riding to work. This is over double the number seen as recently as 1983. In addition to this growth, significant increases in "utility" cycling (non-recreational, non-commute trips) can be seen throughout the Puget Sound region as well as across the nation.

Sales of bicycles in the United States have outpaced those of automobiles for over a decade, averaging over 10 million bikes sold per year since 1980. A staggering percentage of this total has been represented recently by mountain bike sales, which constituted five per cent of the US. market five years ago, and today is climbing over fifty percent of national bike sales.

Children remain one of the largest users of bicycles nationally, with sales of youth bicycles still near half of the U.S. market. For kids, bicycles represent a primary form of both transportation and recreation, as well as an early means of interaction with the transportation system. Perhaps as a result of both large numbers of users and lack of traffic experience, children aged 16

and younger are cited by the National Highway and Traffic Safety Administration as representing about half of bicyclist fatalities in the United States, with children aged 10-16 at the greatest risk. Among boys aged 9 to 12, bicycles are involved in about 30% of motor vehicle related deaths.

In King County, however, accident rates involving bicyclists and motor vehicles declined 60% in the years 1985-1990. While it is difficult to obtain specific sales figures, it appears that the tremendous growth in bicycling activity may also be generating awareness among the general public of the educational and facility needs of bicyclists. Public policy has developed in recent years which has embraced the bicycle as both a transportation and recreation resource, while agencies involved in traffic safety education, engineering, enforcement, and injury prevention are developing programs designed to accommodate this growth.

A QUICK HISTORY OF BICYCLING IN KING COUNTY

Bicycles have been a part of the history of King County since the earliest development of Seattle. In 1896, the Queen City Bicycle Club was founded, and with it was initiated a campaign to develop what would become a system of almost 35 miles of pathways. The first path that was officially opened for Seattle bicyclists was the Lake Union Path, in 1898. At this time, the bicycle club had grown to 4,000 members, with 3,000 registered cyclists in the City of Seattle. The Bicycle club soon changed its name to the Queen City Good Roads Club, and spent $2,000 for the development of a paved route from downtown to Lake Washington. Many elements of this effort can be seen today on Interlaken Boulevard on the north side of Capitol Hill.

While development of the automobile and its associated highway system soon took national precedence over bicycles and railroads, the basic mobility offered by the bicycle never changed. What did change was the public's attitude toward bicycles and bicycling as the private automobile became the dominant form of transportation for most Americans. By World War II, the bicycle had been relegated to the status of a toy, both in public perception and in legislation.

The energy crisis of 1974 fundamentally changed American transportation values and assumptions and is still having an impact on local government today. One assumption which has significantly changed is the perception of the "bicycle as a plaything". Also in the seventies, a growing environmental awareness focused more negative attention on the hidden costs to society of a total dependence upon auto-based mobility, costs which include air and water quality degradation, traffic congestion, consumptive land use patterns, and the high cost of insuring people and property against the higher damages resulting from collisions.

After the energy crisis, King County and other local governments sought new methods to plan for bicycles. Between 1979 and 1982, the Department of Planning and Community Development began to monitor bicycle issues, per the direction of the 1974 King County General Bicycle Plan. Other departments, such as Public Works and Parks, maintained independent programs structured around the perceived need to develop separated bicycle facilities. Trails such as the Burke-Gilman, Sammamish River, and Interurban were the first to be developed under this plan, along with ambitious community plan project lists with numerous bike lane projects intended to channel bicycle traffic to the trail system envisioned by the 1971 King County Urban Trails Plan.

Bicycle planning during this period shared several common characteristics amongst the various jurisdictions in King County. First and most notably was an almost absolute emphasis on providing separated facilities, either in trails or parallel pathway facilities. Second, very few jurisdictions formalized input from community groups interested in bicycling, and third, little consensus was reached on the development of consistent design standards for either on or off-street bicycle facilities.

Since the energy crisis, an emerging debate within the bicycling community and in public agencies has centered on the issue of what constitutes appropriate public design and program responses to increased cycling. Most of this discussion centered on engineering questions related to the accommodation of bicycles within the road right of way, as well as specific geometric criteria to be applied to the development of paths and trails. One side of the debate advocated the continued development of separated facilities as the most appropriate means of providing safe facilities for bicyclists. On the other side, many bicyclists held that bicycles are legally considered vehicles and that facilities should be designed to allow the safest integration of bikes and motorized traffic possible.

In 1981, the American Association of State Highway and Traffic Officials (AASHTO) issued their Guidelines for the Development of Bicycle Facilities. This document, which was based upon standards developed for the California Department of Transportation (Caltrans), provided a baseline for consistent application of design standards for both on-road and trail projects. The Guidelines were amended in 1991 to more closely reflect advances and recent developments in bicycle facility design.

While the establishment of design guidelines by AASHTO did much to provide a measure of consistency across jurisdictional boundaries, the application of these guidelines by individual roads and parks departments has been sporadic, and subject to fluctuations in financing and political support. The development of a bicycle program within the City of Seattle Engineering

Department in 1975 was intended to make bicycle considerations an on-going effort throughout the department. This program has established a model for the development of other programs nationwide, including RoadShare at King County.

The key to successful program development at the City has been institutionalized citizen participation in the review of capital projects and program initiatives. In addition, the bicycle program established a maintenance "Spot Improvement" program to identify low-cost improvements which materially improve the on-road bicycling environment. The program has also been involved in program research into property values associated with trail projects, bicycle parking installation city-wide, and signing of informational bicycle routes.

The King County Comprehensive Plan of 1985 identified a need for the development of a similar program at the County. When established in 1987, the RoadShare Program of the Department of Public Works was charged with providing the same manner of "internal advocacy" as the Seattle program, but with a focus on regional bicycle, pedestrian, and equestrian issues. As the program has developed, RoadShare and the Seattle program have continued to share the same issues but with varying emphasis. RoadShare has been heavily involved in the development of consistency in project and program development in the region while at the same time developing project and planning data for community plans within unincorporated King County.

The RoadShare Program works to integrate citizen participation in County nonmotorized transportation issues via a thirteen member Nonmotorized Transportation Advisory Committee, with appointments based on geography and nonmotorized interest. Nominees are confirmed by the County Council to two-year terms and, once on the Committee, are expected to provide advice to the County on specific projects, programs, and initiatives. The committee is the sponsor of an annual Pedestrian Safety Conference, and provides direct review of maintenance and capital programs.

EXISTING CONDITIONS FOR BICYCLING IN KING COUNTY

As indicated by national sales and usage figures (local business data is considered too proprietary for public release), bicycles are used by many citizens of King County for a variety of purposes. All can be considered transportation-oriented in that the purpose of the trip almost invariably involves intermediate destinations. The particular use of a bicycle, however, implies different user expectations based upon the purpose of the trip. The following characterizations of users are, by necessity, generalized, as it would be similarly impossible to define the types of journeys represented by all users of motorized transportation.

Utility Cycling

As bicycles have evolved and become easier to ride, many active recreational bicyclists have come to view the bicycle as an option for commuting and for running errands. The needs of commuter (utility) cyclists vary significantly from the purely recreational cyclists, particularly in the areas of route selection and directness of route.

Aesthetic concerns are of lower priority to the commuter - minimization of trip distance and time of trip are of greater concern. The bicycle offers the commuter much the same freedom as walking or driving in that the mode allows direct access from origin to destination - within these same constraints of distance and time. As a result, route selection which maximizes this access and freedom takes a priority for these users over more aesthetically oriented route choices.

Barriers - as represented by topography, controlled street access, or traffic - serve as the greatest impediment to increased bicycle commuting on the road system itself. Because the bicycle's advantage as a commuting vehicle is based upon its ability to move directly to its destination, any barrier which forces either additional expenditure of time or effort can drastically reduce the utility of the bicycle on that particular trip. Many of these barriers can be overcome by providing information on alternative routes, or by making improvements to the barrier (such as a path on a bridge, a by-pass trail around an interchange, or improvements to a road shoulder).

As important as road facilities and access, however, is the environment confronting the cyclist at the destination. The lack of adequate parking facilities, a place to change clothes or to shower, or even a lack of acceptance of the time constraints posed by bicycling can make bicycling an unacceptable alternative for many who might otherwise be inclined to ride to work.

In King County, home to work distances are such that many would be dissuaded from choosing to commute by bike. It is possible, however, to encourage shorter distance cycling to gain access to public transit within residential neighborhoods if adequate facilities are in place within that neighborhood. It is difficult to establish a prototypical "capture area" for bicycle commuting. Past surveys of commuter behavior both in King County and elsewhere establish only that the length of the trip can vary in direct proportion to rider skill and the directness of the chosen route. While a trip of two to five miles may appear to be a reasonable capture for many types of bicycling trips, current commuters often ride five to ten miles (occasionally twenty or thirty) to work. The combination of trip purposes (an after-work "fitness ride" for example) can also extend the commute trip.

Facility improvements on-road which encourage commuting would include standardized inclusion of space (bike lane, shoulder, wide curb lane) on

arterials, provision of direct by-passes at barriers such as bridges and ramped interchanges, and close coordination of on-road facilities and trails in instances where the latter serves as a direct link between activity centers. The Burke-Gilman trail is perhaps the most cited trail in America as a combination recreation/commuter facility.

Recreation

Clearly, recreation does represent the reason most bicycle trips are taken in King County. Depending upon the skill level and experience of the cyclist, the trip can involve separated multi-use trails, quiet country roads, local streets, or (most likely) some combination of the three. Many county bicyclists use the trail system as a means to access outlying roads, and similarly use local streets and arterials to gain access to the trail system. Weekend cyclists are noted for meeting at some outlying location as a 'jumping off" point for group rides to rural areas and destinations. In urban areas such as Shoreline, recreational cyclists will use grid streets to gain direct access to the Washington State Ferry System, and thus to quiet country roads on the west side of Puget Sound.

Recreational cyclists place a great emphasis on the aesthetics of the route and consider scenery, open spaces, and the "character" of the road as desirable elements of a given trip. Roads with minimal motorized vehicle volumes are very important as are roads which provide adequate shoulder space when volumes or vehicle speeds are higher.

Topography is a lesser consideration as the skill level of the recreational cyclist increases. Shoulder space is a primary concern in hilly areas, as the speed differential of the cyclist relative to a motor vehicle is highest on a climb. As the climb gets steeper, control of a bicycle becomes more difficult, also implying the need for additional shoulder space.

Several areas and roads in King County are notable for their attractiveness to recreational cyclists. The Snoqualmie Valley has long been a magnet for cyclists of a wide range of abilities and skills, as have the roads of the Upper Snoqualmie Valley near North Bend and the City of Snoqualmie. Green Valley Road east of Auburn to Flaming Geyser State Park and May Valley Road in Newcastle are also popular recreational cycling roads.

In urban areas, high traffic volumes provide disincentives to recreational use, but several roads are notable for their use by local cyclists. In south King County, Marine View Drive and Dash Point Road are popular cycling roads, while in Shoreline, a series of roads near Shoreline Community College provide both access to Edmonds as well as views of Puget Sound. Routes such as the signed Lake Washington Loop can provide useful information to bicyclists on roads which may cross a variety of different urban cycling environments.

BICYCLE FACILITY DESIGN

The development of an engineering response to the needs of bicyclists depends heavily on adherence to a consistently applied set of design standards which integrates the needs of the bicycle, regardless of the purpose for which a given trip is taken. While such standards and design guidelines have existed the consistent adoption of such design standards has proven difficult to achieve. The following policies lay the foundation for the integration of "bicycle friendly" design principles on the road system of King County.

B-1 The design, construction, and maintenance of all County roads shall provide for the needs of bicyclists, with specific added attention given to those roads established and defined in a network of key bicycling streets.

B-2 The County should provide a strong funding commitment to building bicycle facilities and to incorporating them in all new road construction and reconstruction of roads on the bicycle network.

Facility design proposals - Urban Areas

The preferred bicycle facility for urban arterials on the Bicycle Network is the signed and striped (Class II) bike lane. The inclusion of the Class II bike lane in the county Road Standards for all arterial construction is recommended, although the use of wide curb lanes is appropriate where available right of way to construct bicycle lanes is unavailable. This recommendation is made under the assumption that the development of urban arterials will include curb and gutter sections with sidewalks. The inclusion of Class II bicycle facilities on shoulders of roads in urban areas is also encouraged when curb and gutter sections do not exist. Profiles of the most common bicycle facility types are shown in figure 2, page 32.

Facility design proposals - Rural Areas

The preferred facility for roads on the bicycle network in rural areas is a paved shoulder with edge stripe. While such facilities are desirable whenever they are developed, priority in project selection and development should be given first to proposals which address current safety and second to access deficiencies. Signing of paved shoulders as Class II bike lanes should only be done if the shoulder meets a minimum standard for width and pavement quality along a substantial portion of its length.

B-3 The County should provide greater safety for bicyclists of all abilities through enhanced transportation system design. Current AASHTO and WSDOT design guidelines should be established as the minimum for inclusion in the King County Road Standards.

The basic types of facilities proposed in this plan fall under the classification system developed by AASHTO in their **Guide to the Development of Bicycle Facilities**, and are also reflected in the WSDOT Design Manual.

B-4 **Nonmotorized projects should be planned and designed to serve areas near schools, recreation facilities, commercial and/or industrial areas, transit transfer facilities, activity centers and established or planned off-road multi-use trails.**

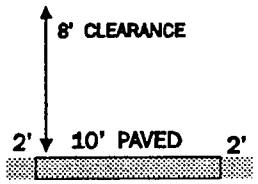
B-5 **Designated projects on the adopted bicycle network should be designed with either an outside lane width of fourteen feet or have striped bike lanes, striped shoulder, or access to a separated trail facility.**

B-6 **Special facility consideration shall be given to projects which can address topographic constraints to bicycle access, either through routing which minimizes grades, or which provides additional width to accommodate slower bicycle speeds.**

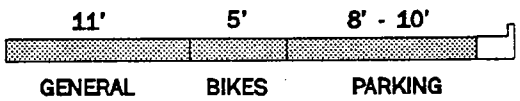
B-7 **The County shall actively seek the provision of separate nonmotorized facilities in any and all cases where existing access is removed via construction or designation of a limited access highway.**

Figure - 2 **Bicycle Facility Types**

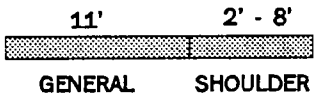
Multipurpose Trail (Class I)
Bicycle/Pedestrian Path. Width 10' minimum with 10'-12' desired and 2' gravel shoulders.



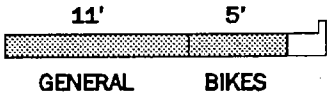
Bike Lane (Class II)
Curbed street with parking



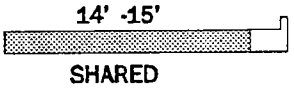
Shoulders
Paved shoulder with edge striping, usually shared with pedestrians. Minimum 4' wide if used for exclusive striped and signed bike lane



Bike Lane (Class II)
Curbed street without parking



Wide Curb Lane
Shared bicycle/vehicle lane



Separated Multi-Use Trail (Class I)

Most separated trails in King County are developed by the Parks Division, and are developed primarily for their recreational benefit. Properly designed and located however, such facilities have become very popular for commuting and other utility purposes. Separated trails work best in corridors completely separated from roads right of way, as parallel trails adjacent to the road often can create serious hazards at the bicyclist's point of access or egress to/from the road. This occurs by changing the status of the bicycle from vehicle to "pedestrian" and back, with a high potential for confusion on the part of both the bicyclist and the motorist.

As a result, Class I separated facilities should only be proposed along road rights of way to provide a specific and quantifiable benefit - they should not be proposed merely to divert bicycles from proposed roadways. The following situations are those in which Class I parallel facilities should be considered:

- Whenever bicycle access is removed from a highway (freeway designation);
- When new freeways are built;
- When interchanges are developed on arterial roads open to bicyclists, and such interchanges incorporate vehicular movements which restrict or inhibit safe bicycle access;
- To provide access to other separated trail systems;
- As a design feature of bridges, tunnels, and other structures which limit bicycle access;
- As a design element of transit way or high capacity transit system development.

Examples of locations where separated trails are appropriate for development in highway corridors include freeways, interchanges, and bridges. Such facilities exist in King County along I-405 between Coal Creek Parkway and Renton and along the I-90 corridor, while a significant recent proposal calls for development on the SR 520 Evergreen Point Floating Bridge. Additional discussion of the role of multi-purpose trails in the County nonmotorized transportation network is contained in Chapter 6, Regional Issues.

Signed and Striped Bicycle Lane (Class II)

The "bike lane" is a basic design feature of many new roads and highways in the United States, and is useful for the delineation of available road space for preferential use of bicyclists and motorists, and to provide for more predictable movements by each. Lanes impart confidence to cyclists by suggesting

that a motorist is less likely to inadvertently swerve into their path of travel. Similarly, motorists are less likely to swerve to the left out of their lane in order to pass a bicyclist on their right.

Bike lanes can be established on streets with on-street parking although a preferred location is adjacent to the curb. Careful consideration must be given to the design of bike lanes at intersections, particularly those with right turn only lanes or ramps. Bike lanes do have the benefit of providing a "buffer" between motorized travel lanes and sidewalks. As such they can allow for savings in the width (and cost) of specified sidewalk facilities developed on County arterials. Bike lanes can be developed on both shouldered and curb/gutter designed roadways.

Wide Curb Lanes

Wide curb lanes incorporate additional width in the two outside lanes to permit the "sharing " of a lane of traffic by bicyclists and motorists. Usually, two to three feet is added to the outside lane, creating a lane of fourteen feet. As the name implies, wide curb lanes are usually used on urban streets with curb and gutter. Their use in King County should be considered only when available right of way or low anticipated potential use of a corridor by bicyclists makes development of a bike lane impractical.

Paved Shoulder

The paving of a shoulder is the most frequent request from area bicyclists received by the King County Roads Division. From the point of view of the bicyclist, the presence of a three to five foot shoulder can make the difference between a dangerous road and a pleasant and popular route for the whole spectrum of different bicycle trips. Such facilities are easily maintained, relatively easy to develop, and only require an edge stripe to become a useful facility - whether or not the road is actually signed as a bicycle route.

B-8 The County should develop the transportation system to a standard that incorporates the needs of bicyclists, and which integrates public involvement into the planning for shoulder development through existing maintenance programs.

Shoulder paving is also an effective tool for improving safety (and thus access) on steep sections of road. Additional width is needed on hill climbs due to the increased speed differential between motorized traffic and bicycles, and the increased maneuverability requirements of climbing bicyclists. In rural areas, paved shoulders are also a prime pedestrian facility. It should be noted that in rural areas, the need for paved shoulders must often be balanced against the desire of equestrians to retain soft shoulders for safer footing for horses.

Shared HOV (Arterials Only)

B-9 The County should integrate the needs of bicyclists into those streets on the bicycle network which also include arterial HOV lanes. Such integration should include the development of demonstration projects to assess the appropriate design response for differing lane configurations and roadway environments.

The development of High Occupancy Vehicle lanes on arterials available for bicycling presents a unique challenge to highway designers. Bicycles are required by law to operate as far to the right as is practical on two-lane roads. The development of HOV lanes without bike access would ostensibly require bicyclists to operate with traffic on either side. Design and/or operational consideration should be given to bicyclists within such lanes for several important reasons.

First, the speed limit and speed differential between the bicyclist and motor vehicles is going to be relatively unchanged regardless of whether the facility immediately adjacent to the cyclist is a HOV facility or a general purpose lane. Second, the HOV lane will (by definition) have less traffic, and thus be a more appealing environment in which the bicyclist can operate (especially when compared to bicycling between two lanes of traffic). While there will doubtless be some concern about bicycles operating within an "exclusive" lane, a review of the purposes for which HOV lanes are built and of the benefits bicycling provides in these same areas will show significant consistency with the overall original intent of HOV facility development.

Some design options (Figure-3, page 36) are available for integrating bikes and arterial HOV lanes, depending upon the anticipated volume and speed of traffic within the HOV lane. Further study and demonstration projects are necessary to refine these options to more specific design criteria. These options include:

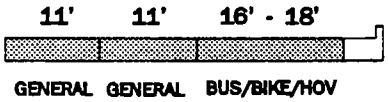
1. Wide Curb Lane - The curb lane is widened to allow bicycle and HOV traffic to more easily share the same lane. A width of 16 to 18 feet is recommended. The widened lane allows bicycles to ride around a stopped bus without having to change lanes. In this option cyclists do not feel restricted to stay in a bike lane. Wide curb lanes are recommended in cases where the number of bus stops are high and HOV traffic volumes are high.

2. Bike Lane Against the Curb - In this configuration the HOV lane is located on the inside of the bike lane. Buses are subject to stopping in the bike lane to pick up passengers. Therefore, treatment is recommended where bus stops are minimal and HOV traffic volumes and speeds are high.

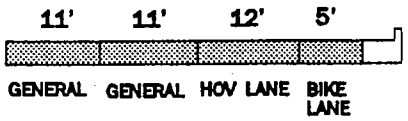
3. Bike Lane Inside the HOV Lane - In this option the curb lane consists of buses only with right turns for all traffic at intersections only. The bike lane is widened (from five to eight feet) to provide additional separation. This treatment is recommended where curb lane volumes and speeds are relatively low, and particularly if bus stops are frequent.

figure-3 | **Arterial HOV and Bicycle Facility Integration**

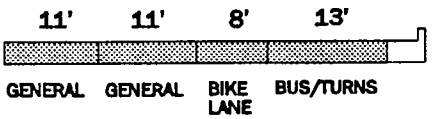
Wide Curb Lane
Curb lane is widened to allow bicycle and HOV traffic to more easily share the same lane.



Bike Lane Against Curb
The HOV lane is located on the inside of the bike lane.



Bike lane inside HOV lane
Curb lane typically consists of buses and right turns only.



BICYCLE ROUTE DESIGNATIONS

The signing of informational routes in King County for the benefit of recreational bicyclists is encouraged so long as the signing scheme proposed conveys information about destination, distance to destination, or geographic directions. Numbering or other identification of the particular route can eventually be used to designate a system of key bicycle corridors. To be discouraged is the use of signs which designate streets as "Bike Routes" without any other distinguishing or identifying insignia.

MAINTENANCE & SPOT IMPROVEMENTS

Since the inception of the RoadShare Program in 1987 the County has sought to improve the ability to respond to the maintenance needs of bicyclists on the County Road System. A familiar complaint of bicyclists is that deficiencies in pavement condition or sweeping which might seem very minor to the driver of an automobile can severely compromise the safety of a bicyclist in traffic. The following policy summarizes two main policies the County should pursue with the adoption of this plan.

B-10 The County should continue to emphasize maintenance in the accommodation of nonmotorized transportation on the County road system, with an emphasis on road sweeping and the continued development of smooth and continuous road shoulders. The County should continue to work closely with affected users to identify and correct maintenance deficiencies on this system.

B-11 The County and railroads owning right of way in King County should actively seek to identify all at-grade railroad crossings in King County which do not cross public roadways at 90 degree angles. Projects at these locations should be incorporated into existing CIP funding programs . Treatments (rubberization, approach ramps and aprons) which permit safe passage by bicycles without requiring severe turning movements into adjacent traffic lanes should be employed whenever possible at these locations.

This second maintenance policy, while very specific, addresses an issue which results in perhaps hundreds of bicyclist injuries (most unreported) in King County every year. Railroad tracks usually require a large amount of caution to negotiate by a cyclist, owing both to the rough pavement surface usually surrounding a grade crossing as well as the occasionally very slippery surface of the track itself. When the track crosses the road at anything other than a right angle, the hazard is multiplied, as the flange opening of the crossing can easily "capture" the front wheel of the bicycle, resulting in an immediate crash. Bicyclists will often adjust their path of travel to cross such tracks at right angles: however, since there is a lack of adequate shoulder space to accommodate this maneuver, a bicyclist may well complete the maneuver in the path of on-coming or following traffic. While the responsibility of maintaining railroad crossings is that of the individual railroad companies and not the County, the County does fund improvements jointly with these companies on an -on-going basis. This effort can include identification and improvement of crossings which are hazardous to bicycle travel.

FACILITY PROPOSALS COUNTYWIDE

Regional Trails Plan

The inclusion of projects from the King County Regional Trails Plan is recommended if the particular trail may be eligible for either state or federal transportation funding. While all but circuit paths are technically eligible for such funding, priority should be given to projects which:

- Serve destinations, areas, and land uses cited in the King County Comprehensive Plan for trail development;

- Serve as diversified a user population as possible;
- Provides realistic and usable access for local pedestrians;
- Provide an alternative to routes which are inaccessible or potentially hazardous for bicyclists; and
- Provide a specific contribution to the development of the County Bicycle Network.

Regional Transit Program

Currently under development by Metro, the Regional Transit Project is charged with the development of proposals to introduce high capacity transit to the central Puget Sound region. Whether the system is rail or bus-based, the project, if developed, offers significant opportunities for the enhancement of bicycle access to the workplace via transit. The Metro Council in 1991 directed RTP staff to prepare a study to assess the potential for integrating the needs of bicycle commuters into system development plans. The Nonmotorized Access Study recommends several provisions for bicycles including:

- Installation of covered and secure parking at all access points to the system;
- Inclusion of bicycle carrying capacity on all new equipment purchased as a component of the system;
- Development of facilities adjacent to station sites which improve bicycle access to the system;
- Integration of new facilities (particularly trails) into and across newly developed right of way.

More information and policies regarding the Regional Transit Project are included in Chapter Six, Regional Issues, and Chapter Seven, Implementation.

Special Events

As recreational cycling has grown in popularity, so too has the demand for organized events for bicyclists. From club rides for a few individuals to the ten thousand participants in the Seattle-to-Portland Bicycle Classic, special events have become a real presence on weekends on the roads of King County. Special events also include competitive events and events for runners, volksmarchers, and equestrians.

Usually, these events are well-managed and safely run. There is always the possibility, however, of unanticipated effects upon the communities in which these events are held or on an event promoter who does not adequately prepare for or manage an event which uses the transportation system of the county.

While such events should be continue to be reviewed and permitted by the County, the refinement of the review and approval process for special events should also encourage their continued promotion, as they are often popularly accepted as a vital part of the communities in which they are held.

B-13 King County should establish clear and consistent policies and procedures for the review and approval of special events (competitive, recreational, mass participation) which incorporate nonmotorized modes, and encourage their promotion when conducted in accordance with these adopted policies and procedures.

EDUCATION & ENFORCEMENT

B-14 The County should increase education, information and traffic enforcement efforts associated with nonmotorized transportation as a means of lowering accident and injury rates to nonmotorized travelers. Such efforts should extend to all highway users, including motorists

Within King County, a remarkable coalition of government agencies and advocacy groups have developed education and information programs on a number of bicycle related topics, including helmet use by adults and youth, current state traffic laws pertaining to bicycling, safe bicycle riding skills, and on the promotion of bicycling within the workplace. Such efforts currently rely upon private grants and occasional government support. What is notable about these efforts (particularly in promotion of helmet use) has been their effectiveness. During the past five years for example, helmet use has gone from an incidental activity of the most dedicated cyclists to approximately 50% of local cyclists (Harborview Injury Prevention and Research Center, 1991). This level of voluntary usage is unheard of elsewhere in the United States, and is the direct result of a dedicated coalition.

Not all issues, however, are as easily addressed as the helmet issue. The Bicycle - Motor Vehicle Collision study clearly indicates that the most effective countermeasure to most types of bicycling injuries is education and enhanced enforcement of existing traffic laws. Unfortunately, most education programs relating to traffic safety that are implemented are focused exclusively on driver's education programs in local schools. If the relationship of an individual to our ever more complicated traffic environment is seen as a continuum of needs - from the child first attempting to cross a street, to that child learning to ride a bike, drive a car, or to retain mobility after the child has become a senior and no longer can drive - then our educational approach to traffic is seriously lacking. Financial resources and competing demands for time in the classroom makes comprehensive implementation of a full traffic safety program difficult, if not impossible. What local bicyclists have shown, however, is that by working directly with children in the schools through assemblies, bicycle rodeos, and through printed

material, a partnership with parents has been established that has resulted in a positive change in accident rates and injury severity.

Current challenges which need to be met include the education of the rapidly growing numbers of adults who have turned to bicycling for transportation, fitness, and recreation. While education programs (such as the League of American Wheelmen's Effective Cycling Curriculum) exist and are occasionally taught by local bicycle clubs, assistance is needed in making these programs available to greater numbers of people who might benefit from them.

A parallel challenge to continued traffic education is the need to enforce bicycle traffic laws. Bicycle clubs have long held that consistent and increased enforcement of laws pertaining to bicycling would materially improve the behavior of bicyclists on the road. Unfortunately, the resources often don't exist for local police to enforce all aspects of the traffic code as thoroughly as both police and citizens might prefer. In addition, police officers are occasionally reticent to issue citations to bicyclists. Experiences in other American cities (notably Minneapolis) indicates that the availability of a pro-active sentencing option for bicycle offenders which incorporates development of bicycling skill can encourage both increased enforcement and delivery of a message that bicycles are vehicles, and that the traffic laws pertaining to their use need to be treated with greater respect by both motorists and bicyclists alike.

Other Information Efforts

Information efforts supporting the goals of this plan extend beyond safety, and into the encouragement of those who might be able to integrate the bicycle (or walking) into their daily transportation habit. Information directed to employers and employees alike can highlight facility improvements which support nonmotorized transportation, as well as diminish the inhibitions first-time bicycle commters may have about changing modes. The emergence of transit's ability to encourage nonmotorized transportation as part of a multi-modal commute is another area in which a directed information campaign can encourage greater numbers of County residents to integrate walking or bicycling into their daily travels.

PEDESTRIANS IN KING COUNTY

BACKGROUND

The world of the pedestrian today is far more complex and intimidating than it was twenty, thirty, or forty years ago - not just in King County, but across the nation. As our transportation system has developed around the automobile, so too have compromises been made in the facilities we make for pedestrian access and safety in our residential neighborhoods, commercial areas, and sometimes even in our parks. It is perhaps indicative of the era in which we live that while small town downtown's (which used to be the domain of the pedestrian) have declined, we have "re-created" them in shopping malls surrounded by large arterials and parking lots, themselves inaccessible to all but the hardiest pedestrian. Once in the mall, all changes - society has been recreated to capture a "place" thought to be lost, where youth meet, children play, and people walk and talk with one another without the intrusion of automobile traffic.

Most affected by this evolution are children and the elderly - those who do not yet or no longer have the requisite skills needed to cross arterials, the strength or endurance to walk extra distance to reach a destination only a few yards away if a path were available, or who simply cannot judge for themselves the hazards traffic represents.

In King County, the problem is exacerbated by the nature of development that has occurred during the post-war era. While cities tend to require more in terms of dedicated sidewalks and design features at the time of development, it has only been fairly recently that the County has started to match these requirements in its own urbanizing areas. Traditionally, the county was rural, where people would build specifically to avoid the costs and requirements of incorporated urban areas. While this hasn't necessarily been a detriment to the character or lifestyles of the County's most rural areas, it remains that much of the County has subsequently become very urban. Areas such as Highline and Shoreline have developed without sidewalks, paths, or trails, yet have developed levels of traffic which rival any other municipality in the County.

For the County, the problem of pedestrian safety and access has several elements: first, the County must ensure that new development on roads and in subdivisions meet standards that not only preserve pedestrian access but also encourage pedestrians; second, areas of the County which do not have a basic level of service as represented by sidewalks and paths need to have these facilities provided; and third, the County must develop an approach to meet the needs of pedestrians who are at risk, both in terms of projects and

programs. Many elements of the response to this challenge are already in place, while others are under development in several different County agencies.

To reach a goal of accommodating and encouraging pedestrian safety and access in King County will require a continued effort in building a community awareness that directly supports pedestrian safety and access. The issues surrounding pedestrian safety are not limited to arterials, but reach into residential neighborhoods.

The Nonmotorized Transportation Plan outlines on-going efforts to direct attention to both capital and programmatic efforts to improve the pedestrian environment in King County, and also specific strategies for consolidating these efforts into a program for accommodating the pedestrian in the traffic environment of the County. This chapter will lay out a strategy for both coordinating existing efforts and to more comprehensively identify and address needs affecting pedestrians in a constantly more complex traffic environment in the County.

EXISTING PROGRAMMATIC EFFORTS

A number of different programs have been developed and implemented over the past twenty years which are designed to improve access and safety both system-wide and at specific locations through out King County. The following policies describe actions which are an extension of County programs which are designed to meet the needs of pedestrian safety and circulation.

P-1 **The County should continue to identify and commit both dedicated funds and general roadway funds to build needed pedestrian facilities such as sidewalks, over and underpasses, walkways, paths and pedestrian activated signals. In addition, pedestrian safety projects and programs aimed at youth, handicapped, and elderly should be a priority of the County in the planning and review of roads and land development.**

P-2 **County facility and signal standards should be reviewed to accommodate the needs of an aging public, particularly in regard to signal phase length, sign size, reflectivity and street lighting.**

P-3 **The County should increase efforts to repair and maintain pedestrian facilities through a cooperative effort of the County, homeowners, developers and businesses.**

School Pathways Program

The School Pathways Program is a cooperative effort between the Department of Public Works and the school districts of King County. Using infor mation from the districts, the Department has provided the design and construction of many small projects which improve access and safety to local schools. Funding for this program is nominally derived from the County share of revenues allocated in R.C.W. 47.30, which established a trails and pathways fund from a percentage of gasoline tax collected in the County. The County share is .5% of collected revenue, while the state collects .3%. While the scope of the enabling legislation is very broad, this particular application of the 47.30 revenues has been effective in addressing a particular type of access affecting a population at risk. Revenues available to this program are generally not sufficient to attempt major capital projects such as concrete sidewalk construction, signal installation, or separated pedestrian over/under crossings. Additional funding beyond the formula allocations of R.C.W. 47.30 has been provided through the County Road Fund on a consistent basis since the inception of the program.

Pedestrian Priority Process

Funded by the County in 1990, the Pedestrian Priority Process (PPP) provides a parallel program for pedestrian facilities which do not meet the criteria for inclusion in the School Pathways Program. The PPP utilizes both citizen and staff input to identify small scale projects, and a weighted scoring system to prioritize these projects for implementation in a given year. As with the School Pathways Program, PPP is not intended to fund major capital improvements benefiting pedestrians.

One of the greatest utilities of this program is its ability to address site specific pedestrian safety deficiencies in a timely manner, and to identify prospective capital projects for inclusion in the Transportation Needs Report prioritization and scoping process. A number of these projects are included in Chapter 9, Nonmotorized Project Proposals.

Road Improvement District Program

Most county capital programs which benefit pedestrians are located on arterial streets, while local streets generally cannot qualify for significant project funding, even though many pedestrian/motor vehicle accidents occur on such streets. Through the establishment of a Road Improvement District, state law provides a legal method for assessing special benefits to real proerty for the cost of county road improvements in residential neighborhoods. The County participation in Road Improvement Districts is based on the general benefits to the public of the improvements.

RID's can be established either by citizen petition to the County Council, or by Council initiative and a vote of the property owners to be assessed. The RID process does provide some incentive for local citizens to fund their own projects. While the RID is a tool for financing pedestrian facilities on local streets not likely to be addressed by regular CIP projects, care must be taken to maintain a focus on facility improvement as the underlying rationale for County involvement in this program. Revenue sources outside of the road fund should be used for developing facilities as an incentive to meet other County or state land use goals and objectives, including those contained within the Growth Management Act.

Pavement Overlay

The annual overlay pavement management program provides shoulder paving on roads and streets selected based upon the level of deterioration of the road surface. As the annual candidate list of projects generally exceeds the funding available for projects, it is necessary to prioritize these projects. The Nonmotorized Transportation Citizens Advisory Committee annually comments on the candidate list to highlight projects which have a particular value to pedestrians and bicyclists, and also which would adversely affect equestrian access within particular communities. As a result, many miles of projects have been implemented which provide additional shoulder width, particularly on rural county roads, while others have been modified to accomodate equestrian needs.

Subdivision Review

P-4 New residential and commercial/industrial development in King County should incorporate pedestrian design elements, both on and off the road system.

By far, the greatest number of sidewalks developed in the County are built as a regular element of the Subdivision/Development review process. Proposed language in the Title 19 Zoning Code revision would expand greatly the variety and number of such facilities developed in the County. Some of these new types of facilities would include pass-through paths from cul-de-sacs to adjacent arterials, better design of bus stops and shelters, and provision of designated walkways in parking lots.

Capital Improvement Program

The priority given to proposed pedestrian projects in the Capital Improvement Program has increased greatly in recent years. This is due largely to increased demand both for the addition of sidewalks to existing proposed projects and the need to develop sidewalks in areas of the County where development took place without these facilities. The inclusion and

adherence to pedestrian oriented standards for road construction has and should continue to result in better facilities where projects are proposed. Unfortunately, while those projects with nonmotorized facilities have scored well in the CIP process, most projects which are submitted for consideration still are derived from a need to accommodate motorized traffic, and only secondarily to mitigate the impact of the project to nonmotorized users. Stand-alone projects for trail development, sidewalk construction, and pedestrian separation still face difficulties receiving road funding.

As the community planning process develops more project recommendations, consideration should be given to specific allocation and funding goals for stand-alone and "retro-fit" projects which benefit nonmotorized transportation. The project list contained in Chapter 9 reflects a number of new projects which meet this stand-alone test, but should not be considered comprehensive. An extensive investment in developing a specific inventory of sidewalks and other pedestrian facilities (not done in King County since 1972) is a necessary first step in a process which will enable effective local assessment of system deficiencies and development of potential remedial actions.

AREA PEDESTRIAN PLANNING

P-5 As King County Community Plans are developed, attention should be paid to the identification of specific pedestrian projects and needs, including the following:

a. Gaps in the arterial sidewalk system;

b. Design and implementation of pedestrian facilities in designated activity centers;

c. Potential transit development, and assessment of pedestrian facilities to connect housing and employment within 1/2 mile of any proposed or existing transit facility, including rail, ferry, park & ride, and along existing transit routes; and

d. facilities linking neighborhoods to existing or proposed trail, park, school, major recreation facilities, or commercial and employment centers.

The following policy relates to the implementation of pedestrian districts, overlay areas, and pedestrian zones within the Community Planning process.

P-6 Policies regarding the development of the pedestrian environment at activity centers should be a priority of the county landuse planning process. Specific design standards should be established to allow pedestrian-preferred environments to be created at these sites, incorporating both a mix of land uses and densities which enhance pedestrian access throughout these

areas. County road standards should continue to allow design flexibility in order to more directly address the needs of these designated pedestrian oriented communities.

A major area of concern in the accommodation of pedestrians on the County road system is the type and funding of pedestrian elements throughout a specific area, such as a business district, activity center, or in new communities. In the case of older communities, the available strategies may be limited by lack of right of way, a desire to balance pedestrian safety against local desires to maintain on-street parking, a lack of local willingness to participate financially in the development of pedestrian facilities on local streets, or conflict with existing environmental regulations, specifically those relating to surface water runoff.

MPD REVIEW

The development of new communities through the Master Planned Development review process offers the County a unique opportunity to create pedestrian accessible and friendly environments with a thoroughness and efficiency not usually available in the regular subdivision review process. In many instances, these communities are envisioned as mixed land use developments, which potentially can emphasize the role of walking and bicycling in reducing a dependence upon automobile transportation for internal trips. At the same time, proponents of such developments cite the generalized benefits of MPD's (in accommodating regional growth, consolidation of new services, etc.) as a rationale for requesting diminished design requirements within these developments.

It should be the policy of the County that pedestrian safety and access is not a commodity to be brokered in the review of MPD's, but instead stressed as a central and essential element of making an MPD as efficient and accommo dating a community as it can be. To this end, pedestrian (and other nonmotorized) facilities should be designed and phased so as to provide maximum mobility through a new community, independent of other established road right of way. While this is a topic that will be addressed in the development of the King County Community Trails Plan, there is an ongoing need to address this issue in current land-use proposals.

P-7 MPD nonmotorized transportation elements should address the following issues:

a. Internal pedestrian circulation in commercial and high density residential areas

b. Access to transit

c. **Development of "pass-through" facilities to minimize pedestrian trip distance**

d. **Relationship to and preservation of local or regional trail systems**

e. **Inclusion of grade separation facilities at points of contact with major and/or principal arterials**

f. **Facility design compatibility with anticipated equestrian and bicycle traffic**

NEIGHBORHOOD TRAFFIC SAFETY PROGRAM

The County should demonstrate flexibility in local and neighborhood planning and pedestrian safety programming in order to respond to the needs of local and residential neighborhoods to control traffic and promote pedestrian safety. Demonstration projects examining alternative subdivision design should be encouraged, while development of new subdivisions should encourage the inclusion of collector street systems which minimize traffic on local access streets.

P-8 Development of the Neighborhood Traffic Safety Program should include the following elements:

a. **The development and use of a wide range of passive traffic control devices in neighborhoods; and**

b. **Acceptance of the need to control "pass through" traffic in residential neighborhoods.**

In late 1988, the departments of Public Works and Public Safety began actively exploring alternative strategies and opportunities for better responding to the increasing number of traffic related problems being experienced by citizens in neighborhoods throughout unincorporated King County. Because solutions to these problems often involve the expertise represented by both departments, the goal of this new effort became that of identification of current speed reduction practices and to determine ways that those efforts can be strengthened and improved through enhanced coordination between engineering and enforcement arms of the County.

As a result of that effort, the Neighborhood Traffic Safety Program (NTSP) has been developed which emphasizes interdepartmental coordination and shared resources. In early 1991, the Department of Public Works hired a Neighborhood Traffic Safety Coordinator who works closely with the Department of Public Safety to address residential traffic problems. The NTSP involves a progression of different actions designed to inform local residents of traffic concerns within specific neighborhoods, including wide-spread use

of the Radar/Readerboard Program to actively demonstrate to drivers the extend of their own speeding in these neighborhoods. After these initial efforts, the NTSP will analyze the potential effectiveness of physical devices (traffic circles, speed humps, etc.) to address the problems identified in the early phases of the NTSP's involvement in a neighborhood.

The NTSP program has six overall objectives. These are:

1. To improve the neighborhood environment by mitigating the impact of vehicular traffic in residential neighborhoods;

2. To promote safe and pleasant conditions for pedestrians, bicyclists, and motorists on neighborhood streets;

3. To encourage citizen involvement and effort in all phases of neighborhood traffic control activities;

4. To inform the public of how the range of neighborhood traffic concerns will be handled;

5. To educate the public in the various aspects of neighborhood traffic control issues and activities; and

6. To make efficient use of the County's resources by prioritizing traffic control requests.

Radar Readerboard Program

The Radar Readerboard Program consists of a vehicle that is equipped with an electric sign connected to a speed radar unit. This equipment is then made available to citizens and/or citizen groups. The equipment is set up in the neighborhood and motorists traveling in that area will be able to see their vehicle speed prominently displayed. In addition to enhancing driver awareness, the equipment operators collect data that is returned to the traffic enforcement unit and analyzed for further follow-up, either by law enforcement or through inclusion in Phase I NTSP threshold determinations.

Area-Wide Neighborhood Improvements

An additional element of a neighborhood-based traffic safety program which benefits nonmotorized transportation would be represented by a comprehensive approach designed to address traffic situations throughout a particular neighborhood, and not just at single sites. Development and definition of local issues through the NTSP could define a program which benefits an entire neighborhood. Such a program would identify, prioritize, and implement a comprehensive neighborhood improvement program which incorpo-

rates a wide range of traffic calming techniques with citizen participation and joint engineering and enforcement programs.

While current CIP projects are focused upon arterial improvements, the development of a financial partnership with neighborhoods seeking improved traffic conditions could encompass changes affecting livability of neighborhoods as well as safety. Such a direction for the expenditure of CIP funds would represent a significant departure from traditional County Road Fund priorities, and may require the identification of a dedicated funding source to allow project development on non-arterial streets.

To implement such a program, neighborhoods county-wide would need to be inventoried for particular elements. This neighborhood definition should result in a base of information allowing prioritization and eventual selection of projects for this planning and implementation effort. Criteria to be considered include:

- Comprehensive Plan Designation
- Sidewalk /Shoulder Inventory
- Speed and Volume of Traffic Generated Outside the Neighborhood
- Accident History
- Presence of Schools and Other Community Facilities Within the Defined Neighborhood
- Transit Routes
- Availability of Undeveloped Right of Way, Community Trail Corridors

Clearly, funding for such a program would be limited initially, and thus the prioritization process should be thorough and based upon participation in the NTSP. In addition, community participation through the Road Improvement District Program should be sought to extend the resources allocated to the program. Additional funding should be sought through State and Federal demonstration grant revenues, if not through new sources of revenue as might be approved by the citizens of the County specific to this purpose.

Such a process would stress a community based and interactive planning effort which should identify issues and relatively permanent countermeasures, including more comprehensive implementation of the devices identified in the NTSP, plus others as deemed appropriate by the Roads Division. Long term maintenance agreements with community associations should be sought if landscaping of design features is desired by the particular community.

PROPOSED EFFORTS AND INITIATIVES

An inventory of undeveloped County right of way should be conducted to assess the potential for establishing short-distance nonmotorized facilities. The inventory should include designation of the legal status of these ways and easements, and the results made available for inclusion in neighborhood improvements plans and in the proposed King County Community Trails Plan. Such right of ways can provide an invaluable resource for pedestrian circulation within neighborhoods.

P-9 Dedicated funds should be set aside for the inclusion of curb cuts throughout the County road system, either as a separate element of the Pedestrian Priority process or as a separate fund. This project should be completed within the time frame set forth by the Americans with Disabilities Act as approved by Congress.

Maintenance

P-10 Road maintenance efforts, including the annual overlay paving program, should be reviewed to maximize benefit to pedestrians through enhanced facility development

As with bicycles, the development of paved shoulders on rural roads and on local urban streets lacking right of way to develop sidewalks can greatly increase safety and access to pedestrians on the County road system. Specific types of pathway projects (both paved and unpaved) can also be developed through maintenance activities which would greatly improve the pedestrian environment within neighborhoods at relatively low cost.

Design Standard Development

P-11 The County should provide for greater flexibility in the design and construction of pedestrian facilities to make them more attractive and enjoyable for users, allowing for use of different material and construction techniques to reflect local taste and diversity on non-arterial streets.

The incorporation of some design flexibility in the development of neighborhood pedestrian facilities has the potential of allowing greater development of small scale pedestrian projects. Such flexibility could be instrumental in the connection of other existing pedestrian walkways and pathways, and should serve to encourage the development of such projects in areas currently lacking sidewalks and paths. Such an approach can also incrase equestrian safety and accessss within equestrian communities. Adherence to the existing King County Road Standards for development of facilities on the arterial system should remain the policy of the County.

Road Vacation Policies

P-12 Undeveloped road right of way in King County should be inventoried as part of a broader pedestrian facility inventory, and road vacation applications reviewed for their potential impact on general nonmototized transportation facility development.

A common activity in the Department of Public Works is the review of proposed vacations of County right of way dedicated but never developed for roads. While many of these proposed vacations are appropriately granted, the resource for local pedestrian access represented by these rights of way should be given additional and regular attention during the review process.

The County Road Engineer is required by R.C.W. 36.87 to provide a recommendation on proposed vacations of dedicated County right-of-way no longer needed for roads. Proposed vacations are circulated to all agencies, utilities, and County departments interestedin developing the recommendation to the King County Council by the County Road Engineer.

While the inventory of undeveloped public right of way would be a lengthy and potentially expensive process, the development of this information is critical to the development of community based plans for effective and safe pedestrian circulation. In the meantime, care must be taken to review vacation applications so as to preserve the opportunity for development of future pedestrian facilities. Road Vacation Applications should be reviewed for:

1. the ability to supplement the arterial sidewalk system
2. the potential to link neighborhoods to each other or to activity centers
3. the potential to enhance pedestrian facilities within 1/4 mile of any proposed or existing transit facility, including rail, ferry, park & ride, and along existing transit routes
4. linkages from neighborhoods to existing or proposed trail, park, school, or major recreation facilities
5. the ability to by-pass barriers to safe pedestrian access along or across high traffic streets

PEDESTRIAN ACCESS PROGRAM

Another proposal of this plan is to establish a funding mechanism to develop pedestrian access projects which do not meet the tightly defined criteria of

either the School Pathways Program or the Pedestrian Priority Process. With the development of the pedestrian inventory, it can be expected that many projects which would improve pedestrian access will be identified and promoted by various communities and neighborhoods throughout the County.

Candidate projects should meet the general cost requirements of the School pathways Program or the PPP, and should be prioritized on the basis of providing new access to pedestrian destiniations and alternatives to potentially unsafe conditions in the same area. Examples of eligible projects would include local pathways not utilizing shared rights of way, footbridges, and spot paving of walkway systems.

EDUCATION AND ENFORCEMENT

As indicated by the **King County Pedestrian & Bicycle/Motor Vehicle Accident Study** (Appendix B), education and enforcement represent critical elements in the development of an environment conducive to safe nonmotorized transportation. Several programs in the County have already shown great promise in their ability to give pedestrians and neighborhood residents the tools they need to either cope with or calm traffic. The following policies and recommendations are designed to expand existing efforts to reach greater numbers and types of pedestrians who are at increasing risk in the current traffic environment.

P-13 **The County should increase education and enforcement efforts as essential elements of a comprehensive pedestrian safety and access program.**

P-14 **The County should continue participation in the Pedestrian Educator Program in King County Elementary Schools, and seek funding from the community for expansion of the initiative.**

P-15 **King County should develop a pedestrian safety program for seniors, to be delivered through senior centers, community centers, senior organizations, and through continuing education programs.**

P-16 **King County should work with local service providers and pedestrian safety professionals to develop a demonstration program aimed at improving the pedestrian safety skills of the developmentally disabled.**

Pedestrian Educator Program

Initiated on a trial basis in 1991 with the Harborview Injury Prevention and Research Center, the Pedestrian Educator Program delivers a curriculum in pedestrian safety to elementary schools within unincorporated King County.

Using both classroom and field techniques, the pedestrian classes stress the identification of potential hazards by the participating students, and also incorporates outreach to parents. The six week course is targeted at students in grades 1-6, and has developed messages specific to age groups within this range.

Education and enforcement issues will be of continuing concern , and consideration should be given to expansion of existing programs to other target populations, notably the senior population of the County. The increasing number of seniors combined with the natural reduction of their ability to perceive and act upon the traffic environment clearly indicates a need to examine the manner in which our traffic system serves these citizens. While education and information efforts will be a major element of this consideration, the County should also review the need to examine signing, lighting, signal timing, and other physical changes which collectively can increase the ability of seniors to manage in a more complicated traffic environment.

THE EQUESTRIAN COMMUNITY IN KING COUNTY

BACKGROUND

Another form of nonmotorized travel that depends upon County roads for access is represented by a large and active equestrian community. While it has been decades since the horse was a mainstay of local transportation in the Puget Sound area, horses and horse related industries and activities are claimed to represent over $100 million to the economy of King County.

In the past, County roads were the main path of travel for horses. Today these roads represent a significant barrier and threat to horse access. Most local equestrians tend to confine their riding to public and quasi-public trail systems - roads represent (at best) a means of access to these systems. Most rural roads seem to serve this function well, so long as road shoulders remain unpaved and traffic volumes stay relatively low. Obviously, these conditions are not as prevalent as they once were in King County, even on some of the most rural roads within the planning area.

Today, equestrian organizations such as the King County Executive Horse Council and the South County Trails Coalition seek the preservation of road shoulders in areas adjacent to major trail systems and within communities which still support a significant amount of equestrian activity. Clearly, the designation of which shoulders should be preserved for equestrian activity needs to be balanced with the needs of other road user groups. Fortunately, the preference of equestrians for road shoulder preservation on less traveled routes implies a need for facilities in locations which are not necessarily identifiable as high priority roads for other nonmotorized transportation improvements.

Some roads, however, represent key access to a number of user groups, and also are experiencing traffic impacts which cannot be resolved within the parameters of rural road design. Such roads may require more capital-intensive design solutions to accommodate horses than simple shoulder preservation - some roads may justify the development of separated paths in order to provide both access and safety in areas of high equestrian activity.

A key to the delineation of significant equestrian communities is represented by the Draft King County Regional Trails Plan, and its designation of which user groups will be accommodated within specific trail corridors. In addition, several current community plans have been developed with specific attention to the needs of local equestrians. These plans include Northshore, East Sammamish, Soos Creek, Snoqualmie, and Bear Creek. Upcoming community plans which will need to address equestrian issues include Tahoma/Raven Heights and Vashon.

PROJECT TYPES

For purposes of this plan, project identification will encompass four types of road projects. These include:

1) Separated Trail Development
2) Neighborhood Pathway Development
3) Shoulder Preservation
4) Access and System Improvements

Equestrian facility types are shown in figure-4, page 58.

E-1 **Priority for the development of equestrian facilities along County roads should be given to projects which divert horses from streets with high traffic volumes and speeds over projects which may provide more direct access to the same destination.**

E-2 **The development of separated trails for equestrians should be considered in cases where a County arterial represents the only available right of way for access within and between equestrian communities and for access of local and regional trail systems**

Separated Trails

A separated soft surface equestrian trail typically represents the most expensive project the County can undertake to preserve equestrian access on certain County roads. As equestrians in general do not prefer to ride along the shoulders of County arterials (even in rural areas), such facilities should be located carefully, so as to minimize conflict in areas where access along heavily traveled arterials is absolutely necessary to connect equestrian communities to each other or to regional trails. Such separated parallel trails should provide both physical and significant lateral separation from the travel way, either through the use of berms, guardrails, fences, or passive landscaping set back from the paved road surface.

Separation is also represented in efforts to allow established public equestrian trails to cross principal and major arterials within equestrian communities. Such separation can be established though the construction of either over and underpasses or, to a lesser extent, the development of signalized grade crossings at other locations, where sight distances, road geometry, and traffic characteristics permit.

Neighborhood Pathway Development

A strategy recently developed within the RoadShare Program of the Department of Public Works which benefits both equestrians and pedestrians in

rural areas is the development of low-cost soft surface pathways on under-utilized portions of existing County right of way. Known as Neighborhood Pathways, these facilities typically use "excess" right of way outside of ditch lines to provide a five to six foot wide trail. The trail, which can be surfaced with a variety of readily available materials, typically requires little in the way of capital expenditures to develop, and in fact can be constructed by road maintenance crews in conjunction with overlay paving projects.

Critical to the development of these facilities is the presence of adequate existing public right of way outside of ditch lines and within the bounds established by adjacent private property. Development of neighborhood pathways should be considered primarily on streets upon which either sidewalk or more formal nonmotorized facility development is not anticipated. While pedestrians can and do operate on soft surface trails of many varieties, it is the shared nature of such a project that makes it particularly suitable for implementation in equestrian communities where higher capital equestrian facility development would be considered unlikely. While such projects should be identified and prioritized within the Transportation Needs Report, it should be remembered that alternatives to CIP funding should be considered in most Neighborhood Pathway Proposals.

Shoulder Preservation

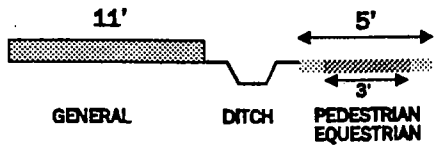
Often, the goals represented by equestrian safety and access can be met with little capital expenditure. On many rural roads and streets, the preservation of at least one unpaved road shoulder can make alternate routes to County arterials accessible to equestrians. Paved shoulders can be extremely slippery to horses shod with metal shoes in either wet or dry weather conditions. While paving of road shoulders is generally the preferred practice of King County, the careful consideration of the access potential of rural roads with low traffic can greatly enhance the safety of equestrians and their horses in the county's equestrian neighborhoods.

Access and System Improvements

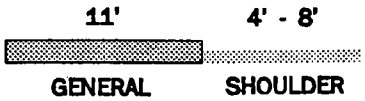
The fourth type of improvement on or along county road right of way which benefits equestrians is the development of spot access improvements such as installation of warning signs, improvement of access to and from road crossings, the improvement of sightlines for equestrians at road crossings, and the provision of facilities or space for off-loading of horses in conjunction with established public equestrian parks and trails. Usually, such improvements should be lower cost, or incorporated into larger transportation improvements that might be programmed for a given location.

figure-4 **Equestrian Facility Types**

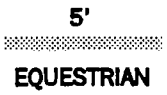
Neighborhood Pathways
Soft surface, Separated Trail. Vertical clearance 10' desired.



Gravel Shoulder
8' desired width



Equestrian Trail
Designed to Forest Service Standards.



KING COUNTY PROGRAMS RELATED TO EQUESTRIAN ACCESS

Capital Improvement Program

E-3 Roads projects in equestrian communities or in corridors containing existing or planned regional equestrian trails should be reviewed for compatibility with equestrian use.

While focused on the development of the arterial system of King County, the Capital improvement Program has identified a number of roads which should be designed to accommodate the needs of equestrians, usually through the development of separated pathways or trails. Such accommodation is also needed on selected local streets within established equestrian communities. While the application of the CIP priority process to these needs would be limited, coordination of the annual review of CIP proposed priority projects with the equestrian community should attempt to identify additional opportunities for access development as new trails and equestrian areas are opened.

Road Maintenance Programs

E-4 Flexibility in roads construction and maintenance practices is necessary for the preservation of safe access in equestrian areas.

The development of practices and techniques which preserve access for equestrians is an activity in which maintenance efforts can be directed with considerable cost effectiveness by the County. Both in the development of

Neighborhood Pathway systems and in the preservation of gravel shoulders, sensitive project definition and development can play a major role in maintaining the viability of existing equestrian communities.

EQUESTRIAN COMMUNITIES

E-5 King County should identify barriers tosafe equestrian access and circulation within established equestrian communities and where access to equestrian trails and facilities remains an issue, and develop strategies for incorporating the needs of equestrians into the transportation system of these neighborhoods.

As the discussion above indicates, the definition of established equestrian communities in unincorporated King County is made difficult by the dynamics of urban growth into previously rural or quasi-rural areas. Traditional indicators of equestrian activity, such as acres of pastured land reserved for keeping horses, is less usable as greater numbers of horse owners turn to stabling their animals on residential parcels. Even the number of trails in a particular area may not be as accurate an indicator of the need to provide equestrian facilities in a given area, as more and more trailers are being employed to transport horses to recreational areas.

Fortunately, recent community plans have attempted (most notably in the draft Northshore Community Plan) to identify enclaves of equestrian activity and to propose policies and actions which would preserve an equestrian element in these enclaves. While a precise formula which defines equestrian communities is difficult to apply countywide, an "equestrian community" (see map insert) can be defined in King County as containing one or more of the following elements:

- Proximity to a regional trail which is accessible to horses;
- Significant tracts of land in which horseback riding is publicly sanctioned (Redmond Watershed, Bridle Trails State Park);
- Private land upon which equestrian access has traditionally been granted
- Commercial stabling operations
- Commercial riding schools and arenas
- Presence of supporting industries such as tack shops and feed stores
- Concentrations of private parcels upon which horses are kept

Some such communities, such as Hollywood Hill in Northshore, have long identified themselves as "equestrian communities", even though the pressures of increasing urbanization have created conflict between the needs of

long-term local equestrians and more recently located residents who do not keep or ride horses, and are not comfortable with the presence of horses on local streets. Other communities are larger and less specifically defined, such as the Bear Creek community planning area, eastern Soos Creek, or the Enumclaw plateau. In any of these cases, however, the potential conflict of animal and automobile on the county road system creates issues which can affect the viability of these areas as equestrian communities.

The types of projects and actions proposed in this plan cannot of their own implementation resolve quality of life issues for equestrians who have consistently been forced further away from previously accessible areas. As is the case with pedestrians and bicyclists, equestrians find that land use regulations (such as zoning limits on keeping animals on a given size parcel of land) can either preserve or prohibit continued practice of the equestrian "lifestyle". What these projects can do, however, is establish the ability of different user groups to continue to have access to public assets (parks, trails, scenic areas) which have over many decades made King County a popular haven for equestrians.

IDENTIFIED EQUESTRIAN COMMUNITIES IN KING COUNTY

The following profiles of equestrian communities provide a sketch of the activities and issues which shape equestrian needs in the respective areas. Specific project proposals are listed in Chapter Nine.

BEAR CREEK

The entire Bear Creek Community Planning Area represents an extremely active equestrian area, with numerous commercial stabling, riding, and support businesses established and an extensive supply of local riding opportunities available. As this area has developed rapidly in the past ten years, a perception that the area is threatened to continued equestrian use has grown, leading to the establishment in 1989 of the King County Executive Horse Council .

Regional trails such as the Puget Power, Bear/Evans Creek (proposed), Sammamish Valley, and Northwest Gas Pipeline (proposed) lead to equestrian destinations and reserves such as the Redmond Watershed and Farrell-Mc Whirter Park. Key road issues in the area include access along and across Avondale Road, Woodinville-Duvall Road, and preservation of unpaved road shoulders on selected key equestrian streets.

EAST SAMMAMISH

As with areas in Northshore and Soos Creek, the East Sammamish Community Planning Area is one in which the rapid urbanization of the community is having a noticeable impact on equestrian access and safety. There are several distinct equestrian communities within the neighborhood, including areas near Klahanie and along 212th Avenue Southeast.

A key to the development of equestrian facilities in this area is the routing and eventual development of several major trail facilities on the Sammamish Plateau. Past trail and community plans have identified corridors which share right of way with both gas and electricity distribution corridors. As currently proposed, these trail systems will require extensive access along existing County roads in order to provide for safe access for a variety of user groups.

While the Southeast 212th Avenue area is not immediately adjacent to one of the proposed trails, the road itself has long been used for access between existing parks, stables, and riding arenas. The road is generally without any shoulders, and is proposed in the draft Sammamish Community Plan for development of a neighborhood pathway to separate nonmotorized traffic (pedestrian and horse) from the increasing volumes of automobile traffic in the area.

ENUMCLAW

The Enumclaw Community Planning Area is primarily a rural and resource lands area, and as such is home to many activities associated with the breeding and keeping of horses. Much of this activity is commercial, and targeted to the thoroughbred industry. Accordingly, not as much emphasis has been placed by local equestrians on the need for road shoulder access as in other areas of the County, although on-going change in the thoroughbred industry in Western Washington may affect the nature of local stabling operations towards the types of activities seen in other areas of the County. The Regional Open Space Plan identifies potential trail corridors on the White River, between Black Diamond and Buckley (Pierce County Foothills Trail), and in the Green River Valley between Auburn and Flaming Geyser State Park. Project emphasis in this area should be on shoulder preservation in areas adjacent to these trails, and in project coordination when these trails are funded for development.

HOLLYWOOD HILL

Certainly one of the more active equestrian communities in the County, the Hollywood Hill area east of Woodinville is considered by residents to be one

of a very few havens for what they often refer to as "the equestrian lifestyle", with an impressive combination of community organizations, institutions, and both public and private facilities which support a healthy local horse industry.

The neighborhood straddles the King County Tolt Pipeline Trail, and is laced with private easements assembled for equestrian access by the Hollywood Hill Saddle Club. In 1992, the King County Department of Public Works began the installation of unpaved neighborhood pathways, so as to allow the joint use, access, and safety of pedestrians and equestrians throughout the neighborhood.

Major issues in the neighborhood include preservation of access to the private easements, linkage of the Tolt pipeline Trail to the Sammamish Valley Trail via Open Space trail development in the corridor established by Northeast 145 Street, and extension of the neighborhood pathway system to equestrian destinations throughout the neighborhood, including Gold Creek County Park and to local stables and riding arenas.

LEOTA/WELLINGTON

The Leota/Wellington equestrian community is on the east side of Northshore located between Hollywood Hill to the south and Snohomish County to the north. Access through this neighborhood to the Tolt Pipeline to The Department of Natural Resources property in Snohomish County, and the University of Washington Bothell Branch Campus, are major local identified needs. The primary accommodation called for in this plan is the preservation of road shoulders on local streets within the community, as well as improvements across and along the Woodinville-Duvall Road,and to Bear and Daniels Creek Park.

SOOS CREEK/LAKE YOUNGS

The Soos Creek Area near the Lake Youngs Reservoir has become an area which has received a significant amount of attention from equestrian groups owing to the presence of both a series of public equestrian trail facilities as well as the pressure of urban development in the area. Central to the community are the trails along Soos Creek (partially open to equestrians) and around Lake Youngs. This trail system serves both as destination and as through route to equestrians seeking access to tracts of land traditionally open to horses ranging from the Lake Desire neighborhood to Maple Valley and south through the remainder of the eastern half of the Soos Creek planning area.

The major issue in this community centers on access to the two trail systems. Planning is currently underway on the fourth phase of the Soos Creek Trail,

which includes equestrian access from Southeasst 196th Street across Lake Youngs Drive to Southeast 208th Street. Particular attention to the crossings of these arterials is needed if the trail improvements are to be utilized by equestrians.

Preservation of shoulder access where it currently exists in the community should be emphasized, although the development of neighborhood pathways in the area may be constrained by narrow rights of way in the immediate Lake Youngs area.

TAHOMA/RAVEN HEIGHTS - MAY VALLEY ROAD

The Tahoma/Raven Heights community planning area is primarily rural in nature, with equestrian activity distributed throughout the planing area. Some concentrations of activity exist on the eastern half of the May Valley road, near Tiger Mountain State Forest, and near Maple Valley and the lake Wilderness trail systems. Development of the Cedar River Trail will also focus some attention on the access requirements of equestrians.

With the exception of the May Valley Road, the preferred action in this planning area is to preserve equestrian access in this rural area is the retention of unpaved shoulder area on local streets, and the identification of pathway opportunities on new construction concurrent with the development of the Tahoma/Raven Heights Community Plan.

The May Valley corridor crosses through both the Newcastle and Tahoma/ Raven Heights community planning areas, and has become a popular area for the keeping of horses, bicycling, and hiking. The road is adjacent to both the Cougar Mountain and Tiger Mountain recreation areas, popular among hikers, equestrians, and (in the case of Tiger Mountain) mountain bicyclists.

Unfortunately, the May Valley Road also serves as an arterial between Issaquah and Coal Creek Parkway, which leads to a potential conflict of uses. The right of way is now almost fully utilized, which leaves little room for the development of parallel trail or even pathway facilities for pedestrians and equestrians. Trail development in the area is similarly constrained due to the lack of an available corridor for acquisition and to existing wetlands.

While the road serves both recreational and vehicular transportation functions, it is unlikely under its current arterial classification that parallel facilities are feasible to construct. Consideration should be given to the development of other arterial routes for development in future transportation and community plans, with additional study given to the role of the May Valley Road in meeting local recreational access needs.

UPPER SNOQUALMIE AREA

The Upper Snoqualmie Valley north of the cities of Snoqualmie and North Bend represents a rural area of the County in which equestrians are also active. Several equestrian projects have been listed in the KCTP for this area, and can be supplemented by attention to preserving key unpaved shoulders in areas linking to the proposed Cross-State trail and the Snoqualmie Valley trail.

VASHON ISLAND

Vashon Island is a very active equestrian community, owing to the rural nature of the island and the low traffic volumes on the island's road system. Local residents are actively developing plans for a trail system linking numerous destinations around the island.

While tentative, the Vashon Island Community Trail System emphasizes access to existing parks, stables, and shorelines throughout the island. A major component of this vision is the retention of unpaved shoulders throughout the island, with the exception of the main island highway. Such a vision is (somewhat surprisingly) compatible with the needs of most bicyclists on the island, who come to the island for the quiet and rural character of the roads and landscape. Pedestrian needs should be focused on Burton, Island Center, and Vashon, with consideration for the safe crossing of the Island Highway included in future traffic planning efforts.

WESTHILL - SWAMP CREEK

While not as intensely active an equestrian neighborhood as Hollywood Hill, the Swamp Creek area east of Kenmore encompasses several roads, local trails, and destinations of interest to local equestrians. The extension of a usable Tolt Pipeline trail from the Sammamish Valley Trail to Kenmore would open up the Swamp Creek Open Space acquisitions to a large number of equestrians both in the Woodinville area as well as in active equestrian communities in Snohomish County near Brier. Completion of the city of Bothell's Trails Plan would also preserve equestrian activity in this otherwise urban area.

Local equestrians have identified several potential projects which might affect future County nonmotorized planning efforts in the community. Development of the "Kenmore Crest Trail" would link the Tolt Pipeline Trail with recent open space acquisitions at the Magnolia Dairy site, several parks, numerous properties associated with equestrian activity, and eventually to the 80th Avenue Northeast corridor, with linkage envisioned south to the Sammamish River Trail.

While this neighborhood is somewhat isolated from other equestrian communities in the Northshore Community Planning Area, improvements to the Tolt Pipeline and Sammamish River Trail Corridors would improve access east/west through the planning area. Linkage of the Tolt Trail through the Norway Hill area is made very difficult by the barrier established by I-405 and by the steep terrain between Kenmore and Woodinville. Coordination with the WSDOT will be necessary to evaluate the potential for improving the safety and accessibility of the crossings of SR 522 necessary to make this corridor functional.

REGIONAL ISSUES

INTRODUCTION

Traditionally, the issues and needs associated with nonmotorized transportation have not been addressed on a regional basis because pedestrian projects and most bicycle and equestrian projects tend to be viewed as a site specific or local issue. In the context of the County, however, it is useful to identify and address the regional implications of nonmotorized transportation, particularly as it relates to other transportation and land-use systems.

There are several compelling reasons why this is an important element of the Nonmotorized Transportation Plan. First, bicycles represent a mode which can both move people between jurisdictions as well as serve as a "feeder" to other transportation systems, such as bus, rail, or ferry networks. The commuter cyclist today can face many different road and trail environments in a fairly short trip, environments which could be made safer and more acceptable to the user through the implementation of a common set of design standards throughout the region. The same consistency is needed in the enactment and enforcement of traffic ordinances affecting both bicycles and pedestrians on the road and transportation system.

Pedestrians, too, need to be perceived as a link in the transportation system, particularly in light of their need to access the evolving transit system as it focuses and shapes development throughout the region. In many cases, this effort is reflected in the design standards applied to road projects, but in a much larger sense, the manner in which land use is allocated to different activities can significantly encourage or eliminate the collocation of employment within walking distance of employee residences. The manner in which we develop (or redevelop) traditional residential neighborhoods not only affects the ability of citizens to access transit, but defines the livability of these neighborhoods.

Equestrian populations in the County have also been affected by regional issues - in the development of trail systems, in the accommodation of urban growth and development in areas traditionally inhabited by equestrians and equestrian facilities, and in the manner that this development is managed in areas as they are annexed into existing communities or incorporate on their own.

R-1 The County shall coordinate closely with other jurisdictions to ensure consistency in planning and promoting nonmotorized transportation.

This Chapter will specifically address nonmotorized transportation issues that cross jurisdictional boundaries in King County, as they apply to transit,

trail development, sub regional planning efforts, and the adoption of standards which can promote nonmotorized transportation throughout the region.

Growth Management Act (GMA)

The GMA requires local jurisdictions to protect resource lands, identify an urban growth area, and ensure that population and employment growth can be accommodated within that area for the next twenty years. The state law also requires that land use plans and development approvals consider what sort of transportation infrastructure is needed to accommodate additional development, including that which supports and promotes nonmotorized transportation.

The state legislation requires that development approval be contingent upon the availability of adequate transportation facilities or the funding required to make the improvements necessary to meet the demand created by new development. This concept is referred to as "concurrency." If an adequate transportation infrastructure is lacking and funding is not in place to provide the necessary improvements to support a proposed development, then that development must either be modified or cannot be approved.

The recently adopted and ratified Countywide Planning Policies (CPP) provide the necessary tools to carry out the requirements of GMA. The CPP also recognize the regional growth strategy adopted by the PSCOG (the Vision 2020 concept). Within the urban growth area a range of urban centers are being designated. Population growth, housing, and employment will be concentrated into these urban areas. The centers will be supported by an HCT system connecting the centers, local bus service, and pedestrian and bicycle amenities which encourage walking and bicycling over SOV travel. Approximately 12 to 17 centers will be designated by December 1992. When these centers have been identified, nonmotorized improvements and treatments will be an important option for facilitating access and circulation within and among the centers.

Adopted Countywide Planning Policies Which Address Nonmotorized Transportation

LU-27 Cities in the rural areas shall include the following characteristics:

c. Design standards that work to preserve the rural, small town character and promote pedestrian mobility

LU-32 ...All plans for Urban Center shall encourage bicycle travel and pedestrian activity

LU-45 ...All plans for regional Manufacturing/Industrial Centers shall encourage bicycle travel and pedestrian circulation

LU-53 (factors to be considered in the establishment of target numbers for employment growth and capacity include:)

5. The willingness of local jurisdictions to implement policies which encourage transit such as SOV parking charges and/or limits, transit, bicycle and pedestrian supportive design, and the adoption of policies that encourage clustering of commercial and residential areas.

LU-56 All activity areas should receive frequent peak hour transit service. Activity areas may contain a high capacity transit station or transit hub if the Activity Area:

b. has pedestrian, bicycle, and transit-supportive site planning, building design and road design regulations

LU-57 To encourage transit use, jurisdictions shall establish minimum and maximum parking requirements that reduce dependance on the single-occupant vehicle. Jurisdictions should establish mechanisms to charge for single-occupancy vehicle parking and/ or a limit on the number of off-street parking spaces for each activity center. All plans for Activity Areas shall encourage bicycle travel and pedestrian mobility.

LU-60 (within Business and Office Parks) Bicycle and pedestrian supportive design should be encouraged.

FW-14 The land use pattern shall be supported by a balanced trans portation system which provides for a variety of mobility options. This system shall be cooperatively planned, financed, and constructed. Mobility options shall include a High Capacity Transit system which links the urban centers and is supported by an extensive High Occupancy Vehicle system, local community transit system for circulation within the centers and to the non-center areas, and nonmotorized travel options.

T-1 The countywide transportation system shall promote the mobility of people and goods and shall be a multi-modal system based on regional priorities consistant with adopted land use plans. The transportation system shall include the following:

g. Nonmotorized facilities

T-7 **The transportation element of Comprehensive Plans shall include pedestrian and bicycle travel as part of the transportation system and be developed on a coordinated, regional basis. The bicycle and pedestriabn element shall be a part of the funding component of the Capital Improvement Program.**

T-10 **Each local jurisdiction shall establish mode-split goals for non-SOV travel to all significant employment centers to reflect that center's contribution to the solution of the region's transportation problem. Mode split goals will vary according to develop ment densities, access to transit service and and other alternative travel modes and levels of congestion. Comprehensive Plans shall demonstrate what transportaiton system improvements, demand management and land use strategies will be implemented to achieve these mode-split goals. These goals shall be coordinated to achieve county and regional goals.**

T-11 **Elements to be considered in the (establishment of a) level of service standard are mobility options that encourage the use of transit, other high occupacy vehicles, demand management actions, access to transit, and nonmotorized modes of travel. These standards shall be consistant with the requirements of the Commute Trip Reduction Act.**

T-12 **Mode split goals and measures of mobility for transit, ridesharing, and nonmotorized travel shall be established by local jurisdictions and METRO. (Policy established prior to public approval of King County/Metro merger)**

While the establishment of countywide planning policies for transportation explicitly encourages the development of facilities for nonmotorized transportation, specific policies establish that goals need to be set for nonmotorized transportation's share of increased non-SOV travel. In addition, the incorporation of nonmotorized transportation needs into assessment of Level of Service for given road and transportation projects adds to the need to develop both better facilities for nonmotorized transportation as well as a means of tracking growth in the use of nonmotorized travel options for a variety of different types of trips.

This second point is significant in that relatively little information exists on local pedestrian and bicycle travel, save that collected by the United States Census in 1980 and 1990. Even this information is not directly comparable, making estimations of bicycle and pedestrian travel a speculative venture, at best. The NMTP represents the establishment of a number of baseline assumptions to be used in the establishment of the required LOS standards and of realistic and attainable mode split goals. The actual setting of these goals will require extensive survey and research work, particularly in areas where nonmotorized travel is constrained by a lack of safe or useful existing facilities.

TRANSIT

Increasingly in the United States, bicycle and pedestrian access to transit is being viewed as a major element in the effort to adapt transit systems to areas which have been defined by the automobile. One of the most significant challenges that transit systems face in developing comprehensive yet cost effective service is the ability to service the low-density residential areas developed because of mobility advantages offered by the private automobile. Transit has usually relied on either service to high density areas to maximize service efficiency, or has brought patrons to the system through the development of Park & Rides. Park & Rides provide the same sort of subsidized parking as usually associated with auto-oriented workplaces, but only in a pattern that can be shaped by the transit provider in a more centralized fashion so as to be served by several transit lines at once.

While park and ride lots have proved popular, they depend on the automobile for the provision of access to transit. While access to park and ride facilities by pedestrians is generally encouraged, many facilities are either inconvenient or even inaccessible to pedestrians. This is due to either through the distance that must be traveled to reach the facility, by barriers represented by high traffic arterials, circuitous walking paths, or even large parking lots which must be shared with often-distracted drivers of vehicles trying to find parking places. In some areas, park and rides have reached or are approaching capacity, with a spill-over effect on traffic at the origin end of the typical commute. This is somewhat ironic in that the purpose of park and rides has been to alleviate congestion at the destination and on the routes of commute trips.

Bicycles have generally been viewed as part of a more generalized answer to bringing the public to transit. Even using a very conservative capture area of two miles surrounding King County Park and Ride facilities, most of the County is within an easy bicycle ride of the existing transit system. The bicycle, while functionally much more than an "extended pedestrian" can in fact increase the effective ability of transit to gain passengers, even in dispersed areas of development. The development of bicycle facilities both on and off street can enable citizens to bicycle to transit, and thus reduce somewhat the congestion that exists at a growing number of Park and Ride lots.

R-2 King County, in cooperation with METRO, should seek federal UMTA funding under Section 3012 of the Intermodal Surface Transportation Efficiency Act to comprehensively update bicycle parking facilities and access at existing transit centers, park and rides, and selected transit stops.

Unfortunately, many barriers currently exist which keep bicyclists away from transit. While most Park and Ride facilities in the County have provisions for bicycle parking, most of it is difficult to use and exposed to the elements, both major disincentives to bicycle use. In some areas, the parking situation is severe enough that the facilities provided are ignored in favor of "ad hoc" solutions more favorable to the user.

R-3 **King County should emphasize nonmotorized transportation projects which improve bicycle access within a two-mile radius of any proposed transit facility developed as a function of any adopted regional transit system, and emphasize proposed pedestrian facilities within one-half mile of the same facilities.**

R-4 **King County should address access opportunities both along and across any proposed transit system right of way for the benefit of nonmotorized access to the system**

R-5 **Nonmotorized access should be a factor in the selection of potential transit system stations, with the planning and implementation of specific facilities conducted on a site-by-site basis**

R-6 **Implementation of non-motorized access facilities which directly benefit the proposed transit system should be included as part of a support effort associated with system development, utilizing applicability standards to be developed between the system developer and the County.**

Regional Transit System

Another example of a barrier in the local transit system is that represented by the inability of cyclists to have direct access on all but a handful of bus routes in King County. Bicyclists have long held that (as is the case with the Washington State Ferries) bicycling can be used to extend the range of transit at both ends of a given trip. Unfortunately, most existing equipment in the METRO fleet (save those vehicles operating a low-key "Bike and Ride" service across Lake Washington on SR 520) is not equipped to handle bicycles either on or in the vehicle. On those routes which are equipped with racks, inconsistent schedules and headways make the service very difficult for the occasional user to interpret and utilize. (King County RoadShare Program, SR520 Bike Shuttle Report, King County Department of Public Works 1991).

The Regional Transit Project

As part of the background research into the development of a regional transit system proposal, METRO in 1991 retained the services of Parsons-Brinkerhoff/Kaiser Engineers to assess the potential and to make recommendations for incorporating pedestrian and bicycle access into the proposed

system. The results of this effort, which focused primarily on bicycle access to the system, is to be integrated into the Regional Transit Project (RTP) System Plan. The primary purpose of the RTP project is to provide a mode alternative to the single occupant vehicle - the potential for nonmotorized transportation to assist in the attainment of that goal was reviewed and found to have enough merit to warrant its inclusion in the system plan.

The study team collected bicycle operating and facility information from the bicycle industry, the bicycle community, METRO, and other transit agencies. The experience of METRO and other agencies was evaluated to determine successful and unsuccessful strategies for incorporating bicycles into transit systems. Opportunities were then identified to incorporate bicycle and bicyclists into the RTP System Plan.

The findings of the study establish that bicycles and pedestrians are considered significant elements to be considered in the development of the RTP. Key findings include:

1. There are approximately one million people who live within a two-mile (desirable bicycling distance) radius of the proposed transit system stations; a significant potential market (see figure-5, RTP capture area).

2. Agencies that actively pursue bicycle patronage experience continued growth in bicyclists using the system.

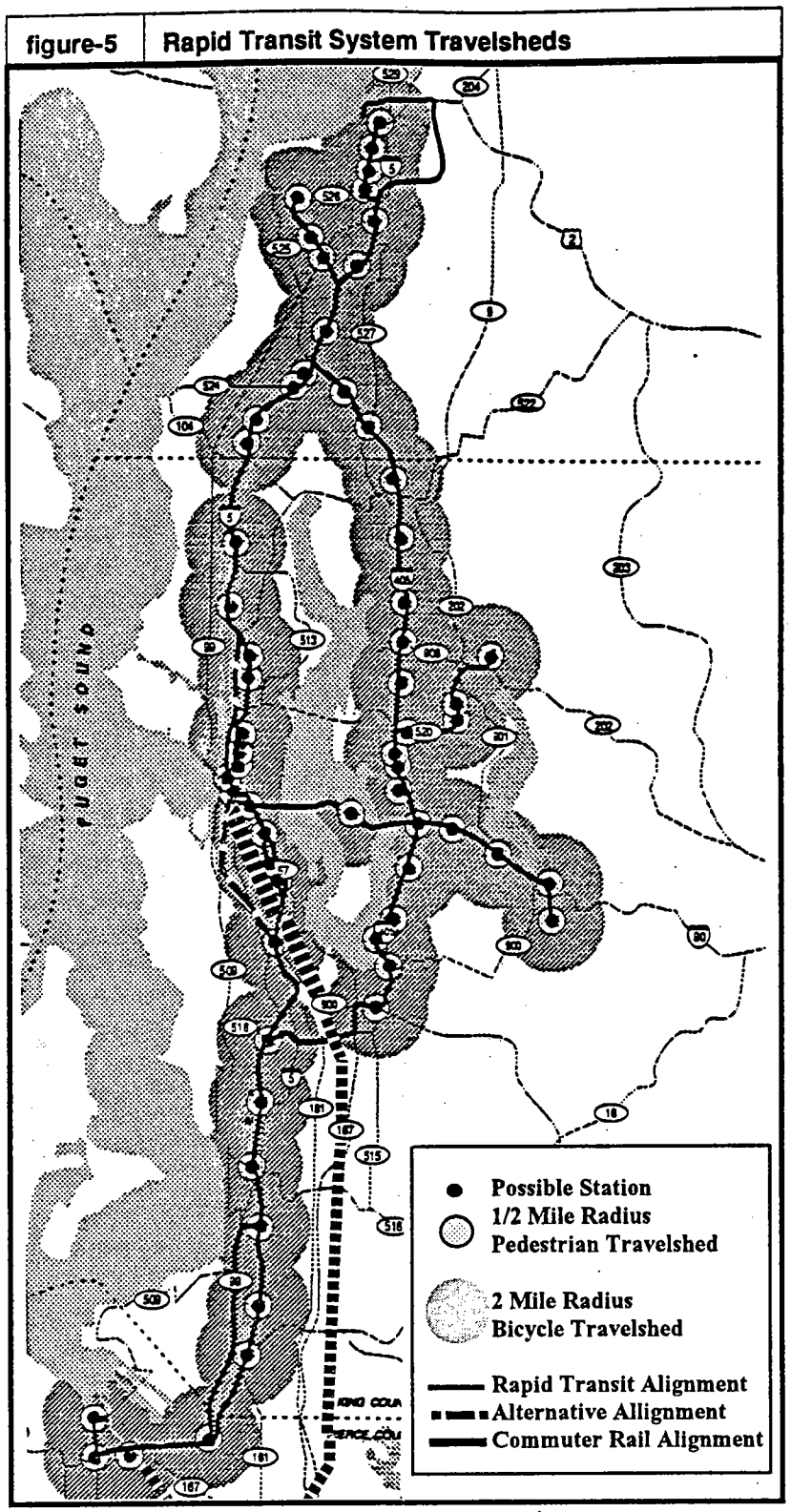
3. Agencies that have made improvements in bicycle access to stations see substantial increases in bicycle ridership at those stations.

4. There have been no claims against any agency contacted regarding bicycles transported on **or** in transit vehicles.

5. The inclusion of the necessary access, vehicle modifications and facility access requirements can be accommodated at relatively modest capital cost.

While the locations for stations have not been selected, the active inclusion of bicycling considerations pose several policy challenges for the County and other jurisdictions involved in the planning of the RTP. Policies recently adopted by the Joint Regional Planning Council on this topic are shown in figure-6, page 75.

figure-5 Rapid Transit System Travelsheds



REGIONAL PLANNING EFFORTS

An important element in nonmotorized transportation planning is represented by the emergence of regional planning programs. As an element of the KCTP, the Nonmotorized Transportation Plan is intended to help guide the development of regional plans, and to serve as a link between the bicycle and

pedestrian plans of various jurisdictions within King County. Such an effort requires the integration of on-street and separated trails planning within the County and the adopted nonmotorized plans of other jurisdictions (see Chapter 7 -Implementation). The Nonmotorized Transportation Plan should then serve to "translate" the different definitions and project types seen in these various plans into a document that weaves these plans into a regional vision for pedestrian, bicycle, and equestrian circulation.

figure- 6	Adopted Bicycle Policies - Joint Regional Planning Council

- **Provide for bicycle transport on feeder and regional bus routes and rail lines, consistent with operating safety, service quality, and passenger comfort.**
- **Provide safe and convenient bicycle access to stations. Station and park-and-ride lot final designs shall include weather-protected bicycle strorage.**
- **Station cost estimates shall include costs for bicycle access improve ments and weather-protected storage. Bicycle access and storage im provements within 1/4 mile of stations shall be considered for inclusion in station costs.**
- **Include bicycle improvements where practical in HOV improvements funded by transit.**
- **During the project-level phase, evaluate bicycle routes within rapid transit alignments.**
- **Local jurisdictions are encouraged to adopt access policies that further enhance the intermodal connections of bicycles and transit.**

Subregional Plans

R-7 **King County nonmotorized transportation planning and projects should strive to be as consistent as possible with the adopted nonmotorized elements of subregional plans. The inclusion of such elements should be encouraged in all subregional transportation planning efforts in King County.**

The development of inter jurisdictional transportation plans for subregions of the County offers an opportunity to provide additional consistency in design detail and connectivity of bicycle, pedestrian, and separated trail systems. While most municipalities develop such plans and programs with minimal input from other jurisdictions, efforts such as the Eastside Transportation Plan can establish the basis for common recognition of local nonmotorized transportation needs.

EASTSIDE TRANSPORTATION PLAN

The Eastside Transportation Plan (ETP) is one of the first sub regional plans in the Puget Sound Metropolitan area to specifically address bicycle transportation issues. The adopted plan includes delineation of a regional bicycle transportation network (figure-7), which was a significant element in the development of the Nonmotorized Transportation Plan Bicycle Network. The project lists which are contained in the ETP also specifically identify proposed transportation projects which are prioritized on a sub regional basis. These plans are integrated into the bicycle project recommendations of the Nonmotorized Transportation Plan, even if the project is not solely the responsibility of the County to develop.

The integration of nonmotorized elements in subregional efforts should have as its purpose the development of recommendations for the Puget Sound Regional Council in the listing of eligible projects for funding under the federal Intermodal Surface Transportation Act as well as guiding state Transportation Improvement Board project funding efforts.

EASTSIDE TRANSPORTATION PROGRAM

Nonmotorized Transportation Goals & Policies

Goal: Provide a regional nonmotorized transportation system that crosses jurisdictional boundaries and that is integrated as thoroughly as possible with the roads and transit system

figure-7	Eastside Nonmotorized Transportation Goals and Policies

1. **Encourage better design of development to facilitate pedestrian circulation and transit service;**
2. **Design new road projects to be compatible with the needs of pedestrian and bicycle transportation, through the elimination of barriers to access and the inclusion of facilities such as sidewalks, wide curb lanes, and signed and striped bicycle lanes;**
3. **Develop regional coordination in planning for bicycle facilities, including the formal adoption of AASHTO guidelines and WSDOT Design Standards for the design and construction of bicycle facilities;**
4. **Encourage the provision of safe and convenient bicycle parking facilities at existing commercial and employment centers, and require their inclusion in new centers as a condition of development;**
5. **Preserve linear corridors for eventual multi-purpose trail development by the use of easements, title acquisition, and "rail banking" of soon-to-be-abandoned railroad lines;**
6. **Adopt the concept of regional bicycle transportation corridors which link regional commercial and employment centers. This system does not supersede local planning efforts, but does demon strate the need for continuity in design and implementation of bicycle facilities throughout the ETP planning area.**

Vision 2020

Developed by the Puget Sound Council of Governments (now the Puget Sound Regional Council), Vision 2020 represents a long-range regional transportation and land use strategy for the central Puget Sound region. The plan replaces the 1982 Regional Transportation Plan as the basis for the approval of state and federal transportation expenditures in the region and similarly replaces the 1979 Regional Development Plan as the regional framework for growth.

Vision 2020 presents a strategy ("the Centers Concept") of coordinated transportation and land use policy with an emphasis on the development of multi-modal transportation systems and land use concentrations which support this system by supporting a new order of more compact, people oriented living and working places. The intent is to reverse trends which have created increased numbers of low-density, auto-dependent communities.

In this context, nonmotorized transportation plays a significant and somewhat understated role in the fulfilling of this new regional order. Several key strategies provide a framework for understanding how land use strategies which accommodate transit can also promote increased public investment in the pedestrian and the bicyclist.

figure-8	Vision 2020 Nonmotorized Transportation Policies

Stategy 1.0
Create a Regional system of central places framed by open space

Strategy 1.2
Provide for diversity and choice in housing and employment options by creating a system of central places (including pedestrian pockets), within corridors, a regional urban form defined by both regional role and unique community characteristics .

Strategy 1.5
Provide for higher density residential areas of new single family and multi-family homes in urban locations within either walking distance of either jobs or transit service.

Strategy 1.7
Promote community urban design plans to guide new development to be compatible with existing development and supportive of transit, pedestrian and bicycle access

Strategy 2.0
Strategically invest in a variety of mobility options and demand management to support the regional system of central places

Strategy 2.7
Develop a regionally coordinated network of facilities for pedestrians and bicycles, accessing transit stations and centers

Strategy 2.9
Promote Transportation Demand Management projects that get the most efficiency out of our existing investments

DEVELOPMENT OF CONSISTENT INTERLOCAL STANDARDS

R-8 King County shall use standards which meet or exceed the guidelines of the1991 AASHTO (American Association of Highway and Transportation Officials) Guide to the Development of Bicycle Facilities as the basis for relevant sections of the King County Road Standards, and should formally adopt these guidelines for the development of the Regional Trail System. Every effort should be made to develop the regional nonmotorized transportation system to standards which meet or exceed the current AASHTO guidelines.

A key to the implementation of regional standards and consistency in nonmotorized facility design is the adoption of a single set of design guidelines. For bicycle and multi-purpose off-road trails, these standards are represented in the AASHTO Guide to the Development of Bicycle Facilities. These standards, which were first developed in the early 1970's and revised in 1981 and again in 1991 represent current practice and philosophy regarding the design and development of trails and on-road bicycle facilities.

The lack of consistency in standards has often been cited as a factor in poor facility design, accident causation, and under utilization of certain facilities. As a result, the AASHTO guidelines have been incorporated into the Washington Department of Transportation Design Manual as well as the King County Road Standards.

WASHINGTON DEPARTMENT OF TRANSPORTATION - DISTRICT ONE ISSUES

State of Washington Programs and Policies Relating to Nonmotorized Transportation

A significant element of any regional nonmotorized transportation plan is represented by facilities which are under the jurisdiction of the Washington State Department of Transportation (WSDOT). The WSDOT, in addition to developing and managing the Design Manual (which is the basis of most transportation facility design standards used in Washington), manages a system of highways in the County which are highly significant and important to bicyclists, pedestrians, and equestrians, whether or not these facilities are in and of themselves accessible to nonmotorized transportation. State highways link most of the activity centers of King County and usually represent the most direct arterial route to destinations sought by utility bicyclists. In more rural areas of the County, state routes may be the only route to a given destination. In urban areas, freeway rights of way serve as barriers and

choke-points to nonmotorized access even between adjacent communities. In other instances, these same rights of way can provide unique access to nonmotorized transportation as is the case along the 1-405 Lake Washington trail between Renton and Coal Creek Parkway or most dramatically along the I-90 corridor between Seattle and Eastgate.

While the WSDOT is ultimately responsible for the planning and development of nonmotorized transportation facilities on state highways, recently adopted policies have reasserted the role of local government in addressing nonmotorized transportation planning concerns along state highway and transportation corridors. The State Transportation Policy Plan addressed this issue in 1991 in the development and adoption of the Washington State Bicycle Transportation Policy Plan. In it, the state establishes the need to be consistent with locally adopted nonmotorized transportation plans in project planning and development.

R-9 King County should work closely with the District One office of the Washington State Department of Transportation to assure that the goals of this plan and of the State of Washington Bicycle Policy Plan are as comprehensively implemented as possible.

Due to the predominant role and presence represented by WSDOT facilities throughout the County, this plan identifies the entire State Highway system as corridors of interest to nonmotorized transportation in King County. This does not imply that it is the policy of the County to encourage bicycle or pedestrian transportation on limited access rights of way - specific concerns will be called out in the recommendations section of the Functional Plan in the same manner County road projects are addressed. There are, however, several corridors of specific interest to the needs of nonmotorized transportation which are identified below as high priority items and are reflected as such in the Recommendations Section of the Functional Plan.

Until relatively recently, the State of Washington, either through the Department of Transportation or other agencies, did not maintain an active role in the development of comprehensive programs or policies for nonmotorized transportation. The state has provided a funding mechanism for trails and paths from a percentage of gasoline tax revenues (.5% to local jurisdictions and .3% to the state) which is rarely utilized by most local jurisdictions statewide. King County is one of the few jurisdictions that has institutionalized the use of RCW 47.30 funds in its School Pathways program (see chapter 4, Pedestrian). Beyond this funding program, the Department of Transportation has included design standards developed by AASHTO . into its own guidelines for facility development, but adherence to the guidelines on the state highway system has been spotty even to the present day.

The state requires the establishment of a comprehensive plan for bicycle facilities before state and federal revenues distributed by the state can be expended on local bicycle projects. Such a plan exists in King County in the **1974 King County General Bicycle Plan - Focus 1990**, but this plan was developed primarily around a system intended to serve a recreation-oriented bicycling public. In addition, funding for bicycle projects submitted to the Transportation Improvement Board must meet route designation criteria established by the Board. Currently, few jurisdictions have such a plan, and the state provides little overview of local designation and updates for any such systems.

In 1991, the state Legislature adopted ESHB 1081 which mandated the creation of a Bicycle Program and Bicycle Program manager position within the Department of Transportation. This program has been charged with the development of a new State Bicycle Plan consistent with policies developed in the State Transportation Policy Project between 1990 and 1991. This plan will address engineering, funding, education, and enforcement issues pertaining to bicycling and the state transportation system.

Other agencies involved with nonmotorized transportation at the state level include the Washington State Patrol (education program aimed at elementary schoolchildren) the Interagency Committee for Outdoor Recreation (trail planning and funding), the state Department of Trade and Economic Development and the Superintendent for Public Instruction.

High Priority Nonmotorized Transportation Corridors - WSDOT Jurisdiction

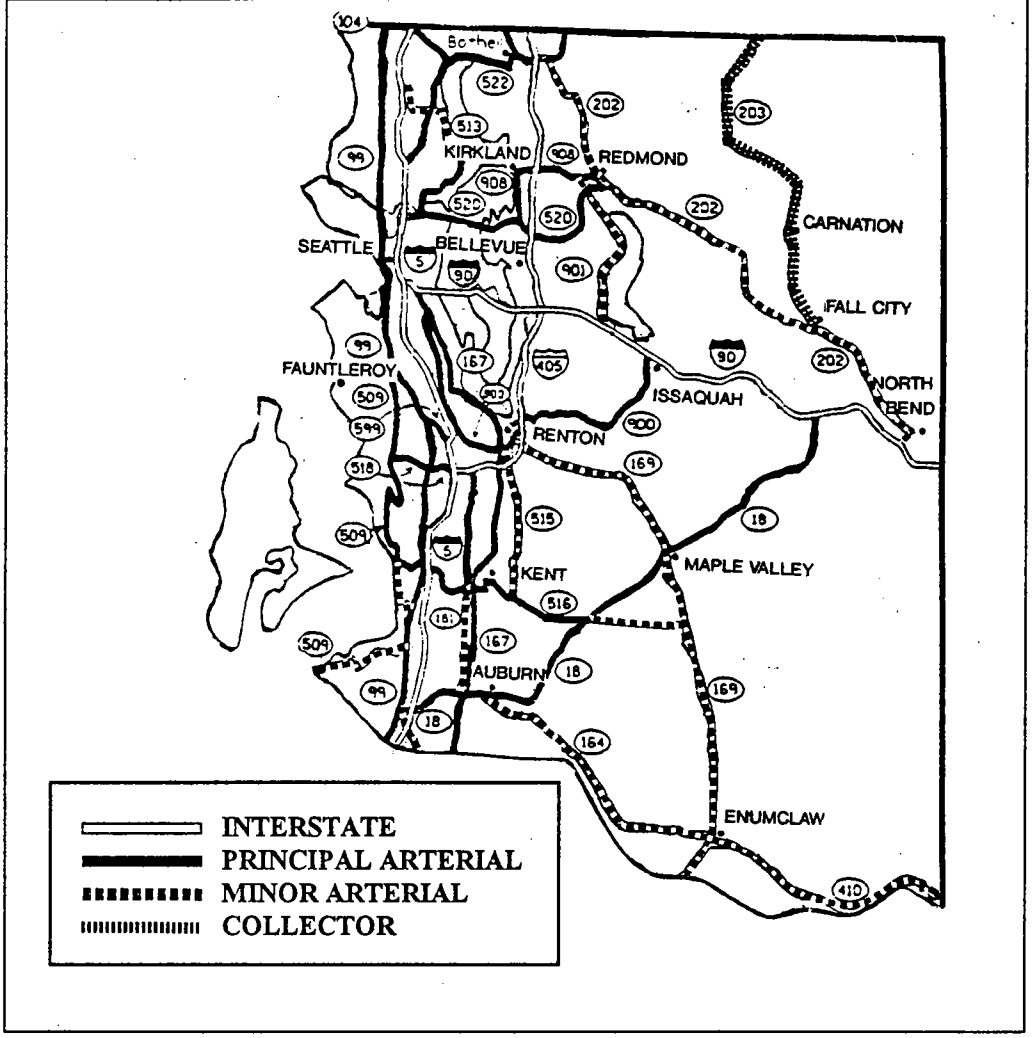
There are many state routes within King County of major interest to bicyclists, pedestrians, and equestrians. Several routes are of particular interest due to the unique access opportunity that planned improvement projects may provide to nonmotorized users or due to the unique barrier that a particular state route may represent to these same users. The following list of routes indicates those facilities which represent an opportunity for improved access between the same types of activities, land uses, and other transportation facilities that would otherwise qualify a County road for consideration for nonmotorized transportation planning or project development efforts.

STATE ROUTE 520 - SEATTLE TO REDMOND

Development of a multi-purpose regional trail facility from Seattle at either Eastlake or Montlake to Redmond would include development of separated facility on the Evergreen Point Bridge, improvement to WSDOT standard of the existing access path at Evergreen/Yarrow Point, and utilization of the existing right of way to connect to the Sammamish River Trail Corridor at

Marymoor Park in Redmond. Corridor development should be coordinated with any Regional Transit Project development of an eastern corridor to Redmond.

figure-9 **Washington State Highways Functional Classifications Within King County**



STATE ROUTE 18 - TACOMA PIPELINE #5 TO SNOQUALMIE RIDGE MPD

King County has long envisioned the incorporation of a multi-purpose trail following the SR-18 right of way north from the Tacoma Pipeline #5 trail corridor north to the proposed separated trail associated with the Snoqualmie Ridge MPD access arterial. This new trail would link the Green River, Cedar River, Soos Creek, and Preston Snoqualmie trail corridors, as well as provide equestrian access in the area of Lake Youngs and Tiger Mountain. The corridor also crosses numerous County roads which are popular for

recreational bicycling, including May Valley Road and the Issaquah-Hobart Road. This facility is cited both in the King County Open Space Plan and the Soos Creek Community Plan.

I-90 TRAIL - SEATTLE TO EASTGATE

Completion of this access trail with all initially proposed facilities remains a priority concern of bicyclists throughout King County and the region. While currently only partially completed, the development of trail facilities in the I-90 corridor has greatly increased cross-lake bicycle commuting. Development of the final leg of the trail to Eastgate would not only open this large employment center to direct bicycle access from Seattle, it would also allow bicyclists seeking access to I-90 from the north to by-pass heavy traffic conditions near downtown Bellevue.

I-405 - NORTHSHORE PEDESTRIAN/BICYCLE ACCESS

While nonmotorized access to the freeway is not sought, pedestrian/bicycle access across the right of way needs to be enhanced, both at existing crossing points as well as at specific areas as identified in the Northshore Community Plan. Similar consideration should be given to limited access highways county wide, with additional emphasis on I-5 in Shoreline, Highline, and Federal Way.

SR-99 - SHORELINE

Development of the Shoreline Interurban Trail should be emphasized as an alternative to the barrier represented by SR-99 in Shoreline. The trail project as it has recently been scoped by the King County Public Works Department and the Parks Division represents a project eligible for state-administrated federal funds under several categories of the Intermodal Surface Transportation Efficiency Act. State involvement in this project should be encouraged, as the corridor is also an element of City of Seattle and Snohomish County trail planning efforts, links major regional centers per the mandate of the State Bicycle Policy Plan, and would additionally provide inter neighborhood connections within the Shoreline community. WSDOT assistance in securing funding for this project would be a primary goal of any inter jurisdictional planing effort on the former Seattle-Everett trolley line.

Recommendations for other state highways in the County are included in Chapter 7, Implementation.

TRAILS PLANNING

While the County has developed one of the most ambitious trails programs in the nation since the development and adoption of the 1971 Urban Trails Plan, the integration of this system with the transportation needs of nonmotorized users (most notably bicyclists) has not yet been addressed in

an adopted County plan. The Nonmotorized Transportation Plan builds many of its project and policy recommendations upon a base that includes trail corridors roughly defined in the 1988 Open Space Plan. One element of this plan which addresses this integration is the Regional Trails Plan, adopted by the County Council in 1992. For purposes of this plan, the Regional Trails Plan draft is considered as the basis of the County's trail development policy and is reflected in the Draft Bicycle Network Map.

Regional trails can serve several transportation functions dependent upon location, right of way type and ownership, and intended design standard and user mix. To the equestrian, the regional trail system represents the base network, and both local trail and any roadside facility designed for horses should generally feed this network. Examples of this type of trail include the Tolt Pipeline Trail and the Lake Youngs Trail. To the bicyclist, a regional trail can serve as a commuting corridor (Burke-Gilman, Interurban Trail), a recreational resource (proposed Cedar River Trail, Snoqualmie Valley Trail) or most likely, a combination of the two (Sammamish River Trail).

R-10 Nonmotorized transportation facilities separated from roads which are not part of the Regional Trails System should be considered for development if they:

a. Provide needed access across gaps in the nonmotorized transportation system;

b. Provide linkages to the Regional Trails System;

c. Eliminate barriers to nonmotorized transportation access;

d. Whenever access is removed from a portion of the transportation system previously open to bicycles or pedestrians; or

e. Provide access to new transit or transportation facilities.

The Nonmotorized Transportation Plan recognizes that linear corridors of land can represent multiple transportation resources, whether or not that corridor is also a recreation resource. Separated multiple use trail proposals should be evaluated for their ability to provide access, link activity centers, and cross physical and/or topographic barriers to nonmotorized travel.

This plan specifically addresses separated trails which follow "non-recreational" corridors, such as SR-520, I-90 and I-405, South 277th Street, and SR-18.

Community Trails Planning

R-11 King County should develop a Community Trails Plan, including the following elements:

a. Preservation of existing dedicated and informal trail systems;

b. Development standards for internal trail systems in large subdivisions and Master Planned Communities

c. maintenance, design, and management standards for the community trails systems;

d. connectivity to the Regional Trails and Nonmotorized Transportation Networks of the County; and

e. any proposed funding and dedication mechanisms needed to implement the plan.

With the adoption of legislation such as the State Commute Trip Reduction Ordinance and the revised County Zoning Code, new types of trails, pathways, and access routes are beginning to be seen throughout King County. These types of trails, combined with pathways, undeveloped road rights of way, access along public or quasi-public corridors (pipeline, power line, etc.), and private or dedicated pathway systems represents a different type of trails network than is included in the Regional Trails Plan. Questions relating to management, development standards, maintenance, and even ownership need to be addressed. A proposal has been made to establish a "Community Trails Plan" countywide, which would catalogue existing minor trail systems and develop the administrative relationships necessary to maximize the effectiveness of such a system. Properly developed, such a plan can provide needed assurance for equestrians who have lost access to trails as previously rural trails are subjected to development pressure, as well as provide a vision to making new communities and Master Planned Developments as accommodating to the spectrum of nonmotorized transportation modes and their attendant efficiencies as possible.